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ABSTRACT

A replication of the first study of Sweden's GUME/Adults Project (Methods of Teaching English to Adults, Gothenburg School of Education) was conducted in 1971. Both experiments were designed to determine which of two language learning theories, "audiolingual habit" or "cognitive code-learning," provides a better basis for teaching foreign language grammar to adults. Specifically, pattern drills and conscious study of grammatical structure were compared in their effectiveness as ESL teaching methods. The experiments differed primarily in that: (1) the average age of the subjects in the second experiment was 22 years, while in the first it was 33 years; and (2) the experimental schedule was more concentrated in the second experiment (one week as opposed to two). The final sample consisted of 91 full-time students. Ten taped experimental lessons dealing with five grammatical structures were administered to the subjects; half the students were taught via the audiolingual method and half via grammar study. Results confirmed the findings of the previous study in that the treatment based on the cognitive code-learning theory (grammar study) resulted in significantly greater progress at all age, proficiency, and aptitude levels. (KM/LG)

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The GUME/Adults Project

Tibor von Elek — Mats Oskarsson

A REPLICATION STUDY IN TEACHING FOREIGN LANGUAGE GRAMMAR TO ADULTS

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PREFACE

The investigation described in this study is part of the research program of the GUME/Adults Project at the Department of Educational Research of the Gothenburg School of Education. The project is sponsored and financed by Bureau L 3 of the Swedish National Board of Education, Stockholm. GUME stands for Göteborg--Undervisningsmetoder i Engelska (Gothenburg--Methods of Teaching English).

The GUME/Adults Project is privileged in having Professor Alvar Ellegård, head of the Department of English, University of Gothenburg, and Professor Karl-Gustaf Stukát, head of the Department of Educational Research, Gothenburg School of Education, as research advisers. We are much obliged to them for the interest they have shown and the support they have given to our work ever since the start of the project.

A great many people have assisted us in various ways during the first phase of our research program thereby also contributing to the success of the replication. We would like to take this opportunity to once more extend our heartfelt thanks to each and every one of them.

A special word of gratitude is due to the administrators of Fristad and Katrineberg folk high schools whose co-operation made it possible for us to conduct the replication experiment under extremely advantageous conditions. Finally we wish to express our sincere thanks to Vivianne Eriksson-Nordwall, Kerstin Kull, Thomas Landahl, Stig Olsson, and Lennart Torstensson for their valuable contributions to the replication experiment through scheduling experimental activities, administering lessons and tests, and assisting us in every possible way.

Gothenburg, August 1973

T.v.E. M.O.

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CHAPTER 1

Introduction

This report presents the procedures and results of an experiment carried out in the fall of 1971 with the aim of testing the findings of the first investigation of the GUME/Adults Project. This was to be achieved by duplicating, in all essential respects, the original experiment conducted during the fall term of 1970. This investigation, referred to as the 1970 experiment hereafter, has been reported in Research Bulletin No. 10 (von Elek and Oskarsson, 1972b); a complete report has now been published (von Elek and Oskarsson, 1973a). A resumé of the experiment has appeared in IRAL (von Elek and Oskarsson, 1972a). The present replication experiment has also been briefly described in IRAL (Oskarsson, 1973). Further we wish to refer to the 1970:20 issue of the School Research Newsletter (1972) which lists a number of publications pertaining to the work of the GUME/Adults Project. It also outlines the entire program of the research.

As the 1970 experiment has been reported extensively before, we shall, in this study, limit ourselves to a very brief summary of its background, procedures and results (Chapter 2). The rest of the report will be devoted to a detailed presentation of the 1971 replication. Experimental procedures will be described in Chapter 3, while Chapter 4 will give detailed information on the results. Comparisons with the 1970 experiment will be made throughout these chapters. A discussion, Chapter 5, will conclude our report. For samples of experimental lessons and tests we refer to previous reports (von Elek and Oskarsson, 1972b and 1973a).

CHAPTER 2

The 1970 Experiment

Background

The nature of the language acquisition process has been the subject of much discussion in recent decades. In particular it is certain aspects of foreign-language teaching and learning that have attracted attention. Since the 1950´s the predominant methods of teaching have placed great emphasis on such elements as repetition and imitation, notably through pattern drills, whereas the role of the cognitive element (analysis and understanding of the structure of the langauge) has been played down. Underlying the pattern drill technique is the behaviorist theory of language acquisition as expounded principally in B.F. Skinner´s Verbal Behavior (1957). According to Skinner linguistic behavior can be explained in terms of stimulus and response, much like any other kind of human behavior (including motor activities). A language is acquired through reinforcement of the correct verbal responses, and therefore language training should consist mainly of imitation and repetitive practice with suitable language patterns until automatized verbal habits have been developed. In the last fifteen years these theories have been challenged as being inadequate descriptions of linguistic behavior, especially by linguists influenced by generative transformational grammar, but also by others who have been disappointed at the results attained in the modern language classes. According to the critics linguistic behavior is something quite different from simple associative reactions to internal and external stimuli. "Language unfolds lawfully and in regular stages", Lenneberg asserts (1967, p. 326). Man is endowed with a specific human capacity for language learning, a so-called "language acquisition device" for want of a better term,

which enables him to develop speech quite independently of such notions as environmental stimuli, reinforcement, and habit-formation. Every speaker of a language has, on the basis of available "input data", built up a grammar, an inventory of rules, which makes it possible for him to interpret and construct utterances that he has never encountered before. This faculty, the critics say, cannot be explained within the framework of a behaviorist theory of language. As Chomsky (1966) has pointed out, an adequate and complete theory of language learning must be able to account for "the quite obvious fact that the speaker of a language knows a great deal that he has not learned" (p. 60).

Resulting from these conflicting theories of language acquisition discussions of both the theoretical and practical aspects of foreign language teaching have become characteristic of the profession. One example may be found in Sweden, which has experienced a vigorous and long-lasting polemic in recent years, centered around the recommendations of the Official Curriculum for the compulsory school system on foreign language teaching methodology (Lgr 69). Participants in this debate, divergent as they were with respect to the ideas they advocated, seemed to agree at least on one important point: the need for research.

The parties in the methodological discussions represent two basically different theories on foreign language acquisition, commonly referred to as the audiolingual habit theory and the cognitive code-learning theory (Carroll, 1965, p. 278). The former views language learning largely as a mechanical process of verbal habit formation on the basis of environmental stimuli, reinforcement, and generalization. In accordance with this idea language training in the ordinary classroom situation should mainly consist of repetitive practice with selected sentence patterns (pattern drill) and other monolingual practices, e.g. memorization of suitable dialogues. The cognitive theory "attaches more importance to the learner's

understanding of the structure of the foreign language" (Ibid.), i.e. insight into the structure of the language is considered an important aspect of the acquisition process. In practice this means that effective foreign language teaching should include proper amounts of clarification and explanation of grammar so that the learner can acquire conscious control of the language structures. Differences between the learner´s native language and the foreign language should be pointed out and explained.

The 1970 experiment was undertaken with a view to finding empirical evidence on some of the issues in the current controversy. Specifically it is the role of imitation and repetition (pattern drills) and the role of conscious awareness of the structure of the foreign language that have been investigated. A great many psycholinguistic experiments of a similar kind have previously been conducted, but no very clear-cut results have as yet been obtained; in general there seems to be a certain trend in favor of "cognitive" methods (Oskarsson, 1972). It should be noted, however, that many studies have been poorly controlled. It is notoriously difficult to carry out educational experiments in such a way that the results can be related to one specific cause, i.e. the experimental variable. All too often a multiplicity of variables enter into the experiment so that the results lose their significance. Particularly difficult to control is the variable of teacher performance in the classroom. In the experiments carried out within the GUME/Adults Project we have tried to come to grips with this problem by using pre-recorded lessons. There are certain disadvantages to this arrangement, but the advantages over experiments with live teachers are obvious.

The primary aim of the research has been to test conflicting theories of language acquisition and thus to contribute to better methods of teaching foreign languages to adults. Grammar was selected as our specific field of inquiry as it is the most important and most difficult aspect of

language learning. The reason for choosing adults as subjects was that the tremendous expansion of adult education in the past few years has brought into focus the special problems of learning after adolescence.[1] It is commonly agreed that adults do not acquire a second language in the same way and with the same results as children, but little is known about what this is due to, nor is it known what the most effective teaching strategies at the adult level might be. Ausubel (1964), for example, argues that "certain features of the audio-lingual approach are psychologically incompatible with effective learning processes in adults" (p. 420), while Newmark and Reibel (1968) try to refute all the common arguments for treating the adult as a different kind of learner from the child (pp. 145-164). Contributions to the improvement of foreign language teaching to adults through investigation of the various aspects of language acquisition must, therefore, be a major task of applied linguistics in all countries where the training and re-training of hundreds of thousands of adults with inadequate schooling has become a large-scale social and political commitment. So far experiments involving adult learners, particularly the type of adult learners represented by our sample, have been few and far between.

Objectives

The main objective of the 1970 experiment was to investigate which one of two language learning theories, the audiolingual habit theory and the cognitive code-learning theory, provides the better basis for teaching foreign-language grammar to adults. The experiment was devised so as to permit analyses of treatment effects at different age, proficiency, and aptitude levels, in addition to the analysis over the entire experimental samples. Other

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[1] In this report the term adult education refers to education for adults whose previous schooling has been only basic, compulsory education.

objectives included the investigation of treatment effects with each of the five grammatical structures taught, and the measurement of attitudes generated by the two treatments. Finally the aim was also to try out and evaluate tests and instructional materials.

Experimental Procedures

The field study was preceded by some exploratory experimentation in the spring term of 1970. Two evening classes of adult students, comparable to the final experimental samples, participated in a pilot study in which first-version teaching materials and tests were tried out. The average proficiency in English and the approximate proficiency range were assessed, the technical equipment was checked, and student attitudes toward various aspects of the experimental lessons were measured.

Several useful observations on practical details were made, especially as regards timing and pauses. The importance of first-rate teaching materials and good sound quality from the tape recorders was apparent. The achievement tests were analysed and a number of items that were either too easy, too difficult or otherwise unsuitable were replaced. The bulk of the original test items discriminated well and could be retained.

The main experiment itself was carried out at the Gothenburg Municipal Secondary School for Adults (henceforth: the School for Adults) during the fall term of 1970.

The scope and some procedures of the experiment were determined partly by the experience gained from the pilot study, and partly by requests from the administration of the school whose courses and students we used for experimental purposes. Since the experiment was to be carried out within a course of elementary English offered by the School for Adults, the administrators were anxious that experimental activities should not interfere with the curriculum and normal proceedings of the course. Therefore,

it was decided that the lesson series should be limited to ten 40-minute lessons, and that the administration of the various tests should not exceed another ten lessons. The course itself, which will be referred to as the Regular Course hereafter, is a 15-week 60-hour course in which students meet twice a week for a double session. One session lasts for 40 minutes. The level of the course can be characterized as elementary.

The pre-recorded experimental lessons were administered at ten consecutive class-meetings in the middle of the fall term (October-November). Immediately after the last experimental lesson a questionnaire (Attitude Test) was given to measure student motivation. An achievement test battery serving both as a pre- and a post-test was given at class-meetings preceding and following the lesson series. Two tests measuring various skills in English (Proficiency Test and PACT) were administered immediately after the start of the course. A verbal aptitude test and a term test were given at the end of the term.

The Experimental Sample

The experimental sample consisted of six classes each comprising between 14 and 30 adult learners, all of them registered with the School for Adults for the same type of elementary course of English. All subjects had a basic knowledge of the language, but they did not master the structures selected for the investigation. The final sample comprised 125 students.

The subjects covered a wide range in age, social and educational background, occupation, previous knowledge of English, etc., and had but few common characteristics. Still, they were all beyond compulsory school age, lacked --with very few exceptions--academic schooling beyond compulsory school, and had, as a consequence, limited language training.

The average age was 33 years, the large majority being between 20 and 40 years. There were 82 females and 43 males.

About half of the subjects were gainfully employed; about half of the females were housewives. It seems safe to state that our sample was a cross-section of adult learners enrolled in municipal adult schools and also fairly representative of the entire population of adult learners.

The classes were randomly assigned to the two treatments, with three classes in each group. The IM classes were given the identification numbers 01, 02, and 03, and the EX classes the numbers 11, 12, and 13. Table 1 gives the background characteristics of the two experimental groups:

Table 1. Background Characteristics of the Experimental Samples in the 1970 Experiment

Variable	Max	Treatment IM(01+02+03)			Treatment EX(11+12+13)			Total		
		N	$\bar{x}$	s	N	$\bar{x}$	s	N	$\bar{x}$	s
Proficiency Test	60	57	31.00	10.13	68	30.54	8.94	125	30.75	9.46
PACT	55	57	32.84	11.35	67	29.54	10.24	124	31.06	10.85
Pre-test	130	57	56.56	18.32	68	53.18	13.57	125	54.72	15.94
Verb. Apt. Test	70	48	51.27	10.19	63	51.49	8.49	111	51.40	9.22
Age	-	57	30.68	8.08	68	34.90	9.53	125	32.98	9.11

The only significant difference between the treatment groups was in age ($p < .01$).

Experimental Methods and Lessons

The experimental methods were designed to correspond closely to the two theories as defined by Carroll. The method based on the audiolingual habit theory was termed the Implicit Method, or IM. Here grammar was to be acquired mainly through implicit inferences drawn from practice with the language. The exercises consisted chiefly of carefully structured and graded pattern drills, performed on the basis of situational pictures projected on a screen

in front of the class. Care was taken to avoid mechanical and extended drills as these tend to cause fatigue and boredom. The audiolingual skills were given priority. The written exercises were mostly of the drill type, too. There were no explicit explanations, comparisons with the source language, or translation exercises; only the target language was used, except in a few directions in the beginning of the lesson series. As no time was taken to explain grammar, a great part of each lesson could be devoted to functional practice.

The experimental method based on the cognitive theory was called the Explicit Method, or EX. The students were given explicit information (in the mother tongue) about the syntactic characteristics of the structures being practised, since, according to the theory, understanding of grammar is an important aspect of second language learning. Comparisons were made with the corresponding structures in Swedish in order to clarify and explain the differences between the two languages. The grammar was taught deductively, that is, the explanations and directions were given before main practice with the structure under study. Upon every instance of clarification the students were given immediate practice of the structure, usually with stimuli in the source language. This gave them the opportunity to apply their insight on a functional level. The exercises, both oral and written, were mostly of the fill-in type or translations. No pattern drills were performed.

Although the IM and EX programs differed profoundly in their mode of presenting the subject matter, they were essentially the same in all other respects. The same five grammatical structures were taught (some and any and their compounds, adjectives and adverbs, preposition + gerund, possessive pronouns, and the passive voice); the vocabulary and basic texts, as well as pictures for illustration, music, technical equipment, format of workbooks, etc. were identical. The same native teachers recorded the lessons--the Swedish explanations in EX were

recorded by one of the experimenters--and the duration of the lessons was the same. Therefore the contents and materials could be regarded as equal; the two series of lessons differed only with respect to method of teaching.

The experimental lesson series consisted of ten 40-minute lessons recorded in advance in a studio and played back in class from a tape recorder. The subjects were supplied with workbooks, one for each lesson, containing the basic text and the written exercises. A set of transparencies for use with an overhead projector accompanied each lesson. The purpose was to make the lessons as vivid and interesting as possible as there was no live teacher to keep the students attentive. Class teachers administered the tests, operated the tape recorder and the projector, handed out and collected workbooks, but did not otherwise take part in the teaching.[1] They did not answer any questions and did not in any other way comment on the contents of the lessons. Neutral observers who listened in to some of the lessons have testified that both programs functioned equally well, and that the subjects of both treatment groups participated actively in the lessons.

Evaluation Instruments

In the 1970 experiment tests were administered in order to measure (1) such background variables as initial proficiency in English (Proficiency Test, PACT) and verbal aptitude (Aptitude Test), (2) achievement through experimental treatment (Achievement Test), (3) attitude and motivation (Attitude Test), and (4) achievement through the regular course (Term Test).

The Proficiency Test was a written multiple choice test comprising 60 items to test command of basic vocabulary and grammar. It involved both production and recognition items.

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[1] Cf. illustration in the Appendix (p. 58).

This test was to serve as a measure on which class units could be compared and assigned to the two treatments. The score was also used as a covariate in analyses of covariance.

The test was administered in each class unit at the first meeting. Testing time was 40 minutes.

PACT (Pictorial Auditory Comprehension Test) involved choosing between pictures on the basis of cues from a tape. This test was given largely for the same purposes as the Proficiency Test. It consisted of 55 items and took 30 minutes to administer.

The Verbal Aptitude Test. The verbal part of a commonly used intelligence test battery (F-provet) developed by Härnqvist (1956) was used to measure verbal aptitude. The test is of the group-test type and while it is chiefly used in the compulsory school it can be used at age-levels above 16 as well. It comprises 70 vocabulary items, for each of which the synonym is to be selected from four alternatives. This sub-test takes 14 minutes to administer.

The Achievement Test, by which progress during the experiment was measured, consisted of three parts (A, B, and C) with a total of 130 items, divided equally between the five grammatical structures. Every fifth item tested the same structure. A fourth section, originally called Part D, deviated from the other parts on several points and will, therefore, be presented separately as "The Oral Test" below. Part A was a 60-item multiple choice test with oral stimuli, Part B was a written multiple choice test with 50 items, and Part C was a 20-item written production test in which the subjects were to fill in the crucial words in incomplete English sentences. This test battery serving both as a pre- and a post-test was given at class-meetings preceding and following the lesson series. The entire test took one hour to administer. Although it would have been of great interest to measure retention by means of administering the Achievement Test or parts of it on a later occasion, this was technically impossible to arrange.

The Oral Test comprised two main parts, a recognition and a production part, consisting of 40 and 30 items respectively. It was administered in a modern language laboratory. Testing time was 30 minutes. Each subject's performance was recorded on tape and marked separately. The test was given only as a post-test since it was more complicated to administer and extremely time-consuming to rate. Besides, given as a pre-test, it might have caused unnecessary irritation among the subjects.

The Attitude Test in the form of a questionnaire was given immediately after the last experimental lesson. The purpose of this test was threefold: to measure the students' general attitudes toward the experimental treatment they received, to have certain aspects of the lessons evaluated by the students, and to get some evidence as to their general attitudes toward the subject and their motivation for studying it.

The Appendix includes the entire test in translation.

The Term Test measured achievement on the regular course of study. It comprised a vocabulary and a grammar section based exclusively on the regular course, i.e. on non-experimental material. The students were given one hour in which to do this test. The double purpose of administering the Term Test was to have a basis (a) for grading the students on their achievement in the regular course, and (b) for comparing the two experimental groups on achievement outside experimental activity.

Results

For the benefit of those unfamiliar with our full report of the experiment (von Elek and Oskarsson, 1973a) a very brief recapitulation of the main findings will be given here. References to the results are also made passim in Chapter 4.

The most important outcome was that the teaching strategies tested were not equally effective. Significantly better learning was demonstrated by the subjects

who had been taught according to the Explicit method ($p < .01$). All Explicit classes achieved greater gain scores than the Implicit classes. Adjustment of the scores for initial differences in proficiency and aptitude between the two treatment groups (IM and EX) further accentuated the raw score differences obtained.

The general pattern of results was very regular, with regard both to the performance of the individual class units, and to the scores for the two treatments on the individual tests.

There was also a difference, although a smaller one, in favor of the Explicit students on the oral test administered after the experimental lessons. For practical reasons this test was not given as a pre-test and therefore no progress scores could be calculated. The difference between the adjusted means was statistically significant at the .01 level of confidence.

The subjects were also given two tests on work done in the regular course, i.e. on matters in which the groups had been given as far as possible identical treatment. The scores for the two experimental groups were almost the same.

There were no interaction effects such that the relative effectiveness of the two methods varied according to learner category. The Explicit students proved uniformly superior at all age, proficiency, and aptitude levels.

The correlation studies showed that there was no interpretable intercorrelation between age and progress scores. On the other hand, age correlated negatively with the results on several achievement tests, particularly the ones that involved auditory discrimination and oral production.

Female subjects tended to achieve better results than male subjects in both treatment groups.

The Explicit subjects were more positive toward their teaching method than the Implicit subjects. The differences in attitude toward instructional materials and other details of the lessons were very small. The groups were equally motivated for studying languages.

Although the outcome of the experiment was altogether unequivocal we drew only quite conservative conclusions, awaiting further evidence. Far-reaching conclusions would certainly have been unwarranted on the basis of one single field study with a mere 125 subjects. Verification of the data through replication experiments was considered of vital importance.

However, in view of the significant difference in learning effect between the two teaching methods we concluded that, in teaching adults grammatical structures which differ from those of the mother tongue, the cognitive code-learning theory provides a better basis than the audio-lingual habit theory. We also concluded, with reference to the Attitude Test results, that a method determined by the cognitive code-learning theory generates more favorable attitudes with adult students than does a method relying on audio-lingual habit principles.

CHAPTER 3

The 1971 Experiment

As was previously stated, the 1971 experiment was a replication of the 1970 study described in the preceding chapter.

Replications are generally looked upon as valuable means of verifying the outcomes of empirical research. In our case it was of particular interest to investigate whether a second experiment would yield similar results, since the research was an attempt to throw some light upon certain very controversial and much debated issues. Without further substantiation of the results, however clear-cut they turned out to be, we felt that we had to be very cautious in our interpretations and conclusions, not only because of the limited scope of the experiment, but also because of certain weaknesses in the experiment itself, which we shall return to presently.

One of our guiding principles in conducting the replication was that the conditions and procedures of the original experiment should be duplicated in all essential details, and that deviations should be allowed only in order to eliminate weaknesses, or to cut down experimental activities to more economic, though still adequate dimensions.

It was found that such a replication could best be carried out at folk high schools owing to the flexibility of this type of school as regards curriculum and schedule.[1] This also determined the new experimental sample, which --as will be demonstrated below--deviated in certain respects from the original one.

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[1] The reader is referred to the Appendix for further information about folk high schools (pp. 56-57).

The weaknesses of the 1970 experiment, hinted at before, lay in the initial inequality of the two treatment groups and in some details of the experimental design.

The treatment groups happened to differ significantly in age. Further, there was a marked disproportion in the number of females, and there was also a not negligible, though statistically insignificant, difference in English proficiency. These differences could not be prevented in the original experiment owing to the fact that the sampling unit was the class, not the individual. To be sure, these differences were taken into account in the statistical analyses. Nonetheless it was desirable to assign the subjects of the replication to experimental treatments through a matching procedure in order to obtain groups that were less divergent with respect to age, sex, and proficiency. Such an experimental sample could be obtained from folk high schools whose flexibility made it possible to get away from the limitations imposed on the sampling in the original experiment.

A relevant objection to the design of the 1970 experiment was that experimental activities were scheduled and conducted within the framework of another course of English (the "Regular Course"), which made it difficult to tell how much of the subjects' gain scores was due to their regular studies between the pre-test and the post-test. This objection called for a new design in which the subjects received for the duration of the experiment no other instruction in English than the experimental lessons. This innovation in design was also possible in a folk high school setting where the chosen students could be temporarily excused from the regular English courses. This, however, presupposed a considerable concentration of experimental activities. The time of the experiment was reduced to two weeks as compared with two months for the original experiment.

Another objection to the original design was that the teachers of the Regular Course, who in fact were identical

with the administrators of experimental lessons and tests, might have exerted some influence on the subjects in their attitudes toward the treatment they were subjected to, and consequently affected the outcome of the research. Therefore it was desirable to secure a better control over the teacher variable. This was achieved partly by the new, more concentrated experimental schedule, and partly by having the experimental lessons administered by assistants who alternated between the two experimental groups.

Some changes in the original testing program were also made. Under the somewhat modified experimental conditions the Term Test had no function and was eliminated. Two more tests were cut out (PACT and the Oral Test), since it was considered that the Proficiency Test and the remaining parts of the Achievement Test (A, B, and C) were sufficient and reliable measures by themselves. The Verbal Aptitude Test used in the 1970 experiment (Härnqvist, 1956) was replaced by two verbal parts of another intelligence test (Westrin, 1967) partly because the latter is considered more adequate at the adult level and partly because the same test was used in a nation-wide survey of adult students. Thus the test provided a good basis for comparing the sample with other adult groups and for investigating if the sample was representative for the entire population of folk high school students.

Except for the modifications outlined above, the 1971 replication experiment was a duplication of the original one. Experimental lessons and the remaining tests were administered in exactly the same form and under the same conditions, the technical equipment was of the same type and quality, and--according to neutral observers--the subjects participated in the experimental lessons just as actively as in the preceding experiment.

In summing up it can be stated that the two major differences between the two experiments were in the concentration of experimental activities and in the age of the experimental samples.

The replication was carried out at two folk high schools providing broad secondary education.[1] The experimental schedule was more compressed than in the original experiment. The general proficiency test was given at the beginning of the academic year of 1971 (early September). On a Friday in the middle of October the subjects were pre-tested and assigned to the two treatments. The ten experimental lessons were then administered during the week following the pre-test. There were no double sessions. Usually there was a morning and an afternoon lesson each day. No other English lessons were given during the experimental period and no English homework was assigned, but other subjects were studied as usual. Immediately after the tenth lesson the attitude test was administered. On the first week-day following the tenth lesson, i.e. on a Monday, the subjects took the post-test and the aptitude test.

The experimental sample consisted of full-time students at the two folk high schools mentioned above. English was one of several subjects on the time-table. The students represented a very wide range of socio-economic background and intellectual ability. Common to all was the fact that they had been out of school for a varying number of years, and that they had all reached the age of 18, which is a requirement for admission. The average age of the present sample was 22, the majority being between 18 and 24 years of age (77 out of 91 subjects). The median age was 20. Most of the subjects were first-year students.

The experimental subjects' English proficiency level can be compared to that of pupils at the upper stage, or senior level, of the Swedish grundskola, i.e. grades 7-9 of the compulsory 9-year school. Up till now (1973) English has been introduced in grade 4 of the compulsory school,[2] and therefore most of the subjects have had

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[1] Fristads folkhögskola and Katrinebergs folkhögskola.

[2] Obligatory English now starts in grade 3 and continues throughout the 9-year school.

some 4 or 5 years of English. However, some of the subjects left school after grades 7 or 8, that is, before the 9-year school had been officially introduced in their home communities, whereas others had taken English courses even after the 9th year of the compulsory school; consequently there was considerable variation as regards pre-experimental language proficiency. All students at the two schools were given a general proficiency test at the beginning of the regular term on the basis of which suitable subjects were tentatively selected. As we wished to obtain a sample comparable to that of the 1970 experiment, only students whose score fell within the range of the proficiency test scores of the original sample were considered as subjects. Because of this prerequisite only students from the elementary English courses eventually took part in the experiment.

The subjects at each school were randomly assigned to the two treatments after a matching procedure based on the pre-test results, that is, the results on the test that measured the students' initial knowledge of the five grammatical problems that were taught in the experimental lessons. Thus two experimental classes, an IM and an EX class, were formed at each school. The IM classes were assigned the identification numbers 04 and 05, and the EX classes the numbers 14 and 15. After the elimination of drop-outs (cf. p. 25) the final sample consisted of 91 subjects. The IM group comprised 20 males and 25 females and the EX group 24 males and 22 females.

Data on some important background variables for the experimental classes and treatment groups are reported in Tables 2 and 3, respectively:

Table 2. A Comparison of the Experimental Classes on Various Background Variables

Variable	Max score		Classes 04	05	14	15
			(N=29)	(N=16)	(N=28)	(N=18)
Proficiency Test	60	$\bar{x}$	33.59	35.23	32.18	29.40
Pre-test Total	130	$\bar{x}$	59.24	69.50	57.04	64.67
WIT III Analogies	27	$\bar{x}$	10.10	12.94	11.54	10.50
WIT III Opposites	29	$\bar{x}$	13.72	14.88	13.61	13.44
WIT III Total	56	$\bar{x}$	23.83	27.81	25.14	23.94
Age	-	$\bar{x}$	22.14	24.06	22.07	20.17
Percentage of females	-	%	55.17	56.25	46.43	50.00
Absent > 2 times	-	N	0	2	1	1
Absence	-	$\bar{x}$	0.03	0.19	0.32	0.28
Motivation (Item 18 in Att. Test)	3	$\bar{x}$	1.88	1.81	1.84	1.[illegible]
Attitude (Item 19 in Att. Test)	4	$\bar{x}$	3.26	3.33	3.15	3.00

Table 3. A Comparison of the Two Treatment Groups on Various Background Variables

Variable	Max score	Treatment IM N	IM $\bar{x}$	IM s	EX N	EX $\bar{x}$	EX s	Total N	Total $\bar{x}$	Total s
Proficiency Test	60	42	34.10	8.74	43	31.21	9.03	85	32.64	8.95
Pre-test Total	130	45	62.89	17.47	46	60.02	17.59	91	61.44	17.49
WIT III Analogies	27	45	11.11	4.91	46	11.13	4.75	91	11.12	4.80
WIT III Opposites	29	45	14.13	3.70	46	13.54	3.79	91	13.84	3.74
WIT III Total	56	45	25.24	7.00	46	24.67	6.98	91	24.96	6.96
Age	-	45	22.82	6.78	46	21.33	3.46	91	22.07	5.39
Percentage of females	-		55.6			47.8			51.6	
Absent > 2 (N)	-	2			2			4		
Absence	-	45	0.09	0.36	46	0.30	0.63	91	0.20	0.52
Motivation (Item 18 in Att. Test)	3	42	1.86	0.35	43	1.86	0.41	85	1.86	0.38
Attitude (Item 19 in Att. Test)	4	42	3.29	0.67	44	3.09	0.80	86	3.19	0.74

The differences between the IM and EX groups are generally very small. The most noticeable deviation is in the general proficiency test, the IM group scoring 2.89 points higher than the EX group. This difference is not statistically significant; for our purposes it can therefore be considered as random variation.

Pre-experimental knowledge of the subject matter taught in the lesson series also seemed to be somewhat higher in the IM group judging from the pre-test means. The difference was, however, purely random, as the pre-test results were used as a basis for matching the subjects into equal pairs whereupon the two members of each pair were assigned at random to the two treatments.

The scores on the Verbal Aptitude Test--both the sub-tests and the total--show that the matching procedure produced fairly equal treatment groups also with respect to verbal aptitude. These scores were also used to compare our sample with the entire population of folk high school students, which constitutes one of the major groups of adult learners in this country. In Table 4 the verbal aptitude scores of our sample are compared with those of a representative sample reported by Johansson and Molander (1969) on the basis of their nation-wide survey:

Table 4. A Comparison of the 1971 Experimental Sample with a Representative Sample of Folk High School Students on Verbal Aptitude

Age Group	Test	The 1971 Sample				The 1968 (Representative) Sample			
		$\bar{x}$	s	N	(%)	$\bar{x}$	s	N	(%)
- 21	Analogies	10.15	4.92	59	(65)	12.05	4.75	315	(55)
	Opposites	13.12	3.34			14.15	3.78		
22 - 31	Analogies	12.77	4.06	26	(29)	12.67	4.98	214	(38)
	Opposites	14.85	4.18			14.85	4.35		
32 -	Analogies	11.83	5.11	6	(7)	10.62	5.22	42	(7)
	Opposites	16.50	3.88			16.41	4.57		
Total	Analogies	11.12	4.80	91	(100)	12.18	4.89	571	(100)
	Opposites	13.84	3.74			14.58	4.10		

In total our experimental sample achieved lower scores on the Verbal Aptitude Test than the representative sample. It is apparent that this difference is mainly due to the relatively poor performance of the youngest age group (18-21) in our sample. The fact that our sample contained a larger proportion of this age group than the representative sample has naturally accentuated the difference.

It should be noted, however, that the nation-wide survey was carried out in the spring of 1968, i.e. before the 1968 Adult Education Act whose aim was to improve the prospects of adults desiring to further their basic education. One of the results of the reform was the establishment of municipal adult schools which came to attract a large number of studious and well-motivated adults. This, in turn, had a noticeable effect on the recruitment of students to other types of adult schools. Experience has shown that the student population of folk high schools has in recent years deviated from previous groups both in terms of age and achievement. The present situation seems to be well reflected in the data compiled in Table 4. We venture, therefore, to conclude that whereas our sample differs somewhat from the 1968 sample as regards age and verbal aptitude, it is certainly fairly representative of the more recent folk high school student population.

As evidenced by the answers to items 18 and 19 in the attitude test the two groups were equally motivated for studying English. The three alternatives of item 18, which questioned the subjects on their motives for studying English, were, in translation:"( ) only for pleasure, ( ) both because I enjoy it and because it is useful, ( ) only because I have to for the following reason/s/:..." The alternatives were assigned the point values 3, 2, and 1, respectively. Very few students stated that they were taking English just for the fun of it.

Item 19 of the Attitude Test read: "My attitude towards languages (especially English) is as follows: ( ) I very

much enjoy studying languages, ( ) I quite like studying languages, ( ) I do not enjoy studying languages very much, ( ) I do not like studying languages at all". The answers were assigned point values from 4 to 1 (for the last alternative). As can be seen from the table both groups were on the positive side, the IM group being slightly in the lead.

A comparison between the samples of the original experiment and the present replication indicates that there were only minor differences in most of the background variables (cf. Table 13 in von Elek and Oskarsson, 1973a). The only substantial deviation was with respect to age. The subjects of the 1970 experiment were, on an average, 11 years older. They also had somewhat lower Proficiency and Pre-test scores (mean scores 30.75 and 57.72, respectively).

On the whole the divergencies noted are not so big as to prevent us from making comparisons between the results of the two experiments.

CHAPTER 4

Results

Only data from subjects who had attended at least eight out of the ten experimental lessons were used in the analyses of treatment effects. Three subjects had been absent from more than two lessons and were therefore eliminated from the computations. Complete data were obtained on 91 subjects. These will henceforth be referred to as the final experimental sample.

Unadjusted Progress Scores

Overall Progress. The principal measure of learning, or progress, is the difference in raw scores on the pre- and post-test; that is, the gain on the same achievement test administered both before and after the experimental lessons.

Before presenting the results we will summarize the outcome of the original experiment--of which the present one is a replication--in a comprehensive table (Table 5):

Table 5. Overall Achievement Scores in the 1970 Experiment: Unadjusted Means and Standard Deviations

Treatment group	Class	N	Pre-test		Post-test		Progress	
			$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s
IM	01	14	62.21	18.40	74.21	16.00	12.00	11.56
	02	24	54.04	18.55	69.42	21.30	15.38	10.66
	03	19	55.58	18.04	67.42	21.50	11.84	8.22
	Total	57	56.56	18.32	69.93	20.03	13.37	10.12
EX	11	30	54.43	15.24	79.43	24.97	25.00	16.30
	12	22	51.55	12.69	74.95	15.93	23.41	11.69
	13	16	53.06	11.85	77.81	17.44	24.76	11.28
	Total	68	53.18	13.57	77.60	20.53	24.43	13.67
TOTAL		125	54.72	15.94	74.10	20.58	19.38	13.33

The subjects who had received the Explicit treatment achieved better progress scores than those who had received the Implicit treatment, the difference of 11.06 points being statistically significant at the .01 level of confidence. Statistical adjustment of these raw gain scores for differences between the IM and EX classes with respect to language proficiency and aptitude at the start of the experiment further emphasized the difference in effectiveness between the methods.

The results of the present replication experiment with younger subjects very much paralleled the 1970 findings. Table 6 presents the unadjusted pre-test, post-test and progress scores for the four classes:

Table 6. Overall Achievement Scores for Classes: Unadjusted Means and Standard Deviations

Treatment group	Class	N	Pre-test $\bar{x}$	Pre-test s	Post-test $\bar{x}$	Post-test s	Progress $\bar{x}$	Progress s
IM	04	29	59.24	16.11	73.97	16.29	14.72	8.04
	05	16	69.50	18.38	83.81	16.68	14.31	9.73
	Total	45	62.89	17.47	77.47	16.93	14.58	8.57
EX	14	28	57.04	15.13	81.00	17.92	23.96	11.04
	15	18	64.67	20.45	84.83	21.33	20.17	11.58
	Total	46	60.02	17.59	82.50	19.19	22.48	11.28
TOTAL		91	61.44	17.49	80.01	18.18	18.57	10.74

As in the original experiment the Explicit classes had significantly higher progress scores, i.e. learned more, than the Implicit classes ($\underline{t} = 3.76$; $p < .01$), but the average score in the IM group is somewhat higher, and in the EX group somewhat lower, than in the previous experiment.

Figure 1 is a graphic representation of the progress made by all ten classes in the two experiments (1970 and 1971). Solid lines refer to Explicit classes and dotted lines to Implicit classes:

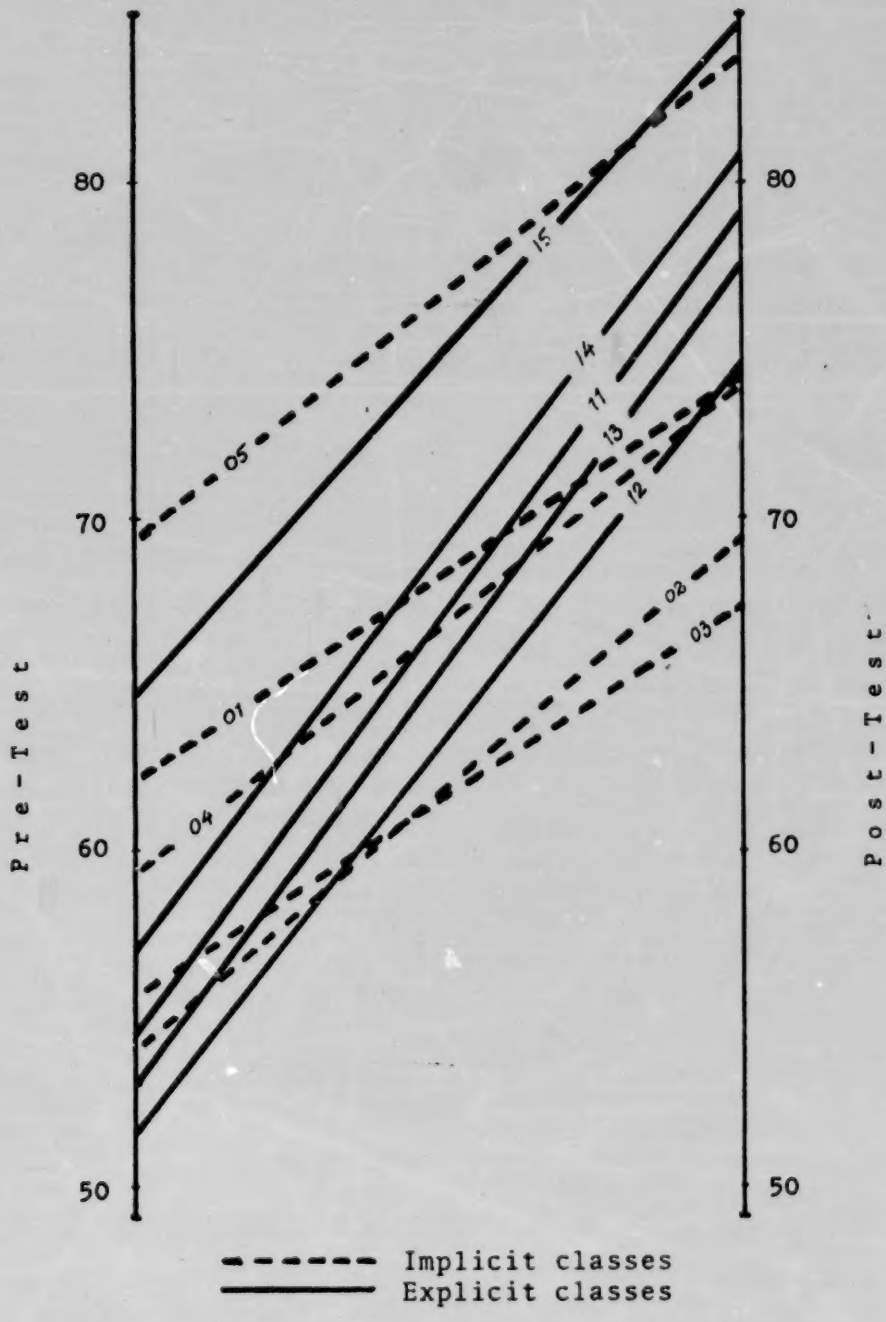

Figure 1. A Graphic Representation of Progress in the 1970 and 1971 Experiments: Class Means

The inclination of the progress lines provides a clear illustration of the regularity in the results. Only in one case do progress lines for classes with the same teaching method intersect (classes 02 and 03); broadly speaking the lines within each treatment group are parallel. This uniformity in the achievement of separate and independent units can be taken as evidence of the internal validity of the experiments.

The regularity in the results may be seen even more clearly in Figure 2, which illustrates the method means in the two experiments. Again broken lines represent the Implicit method and solid lines the Explicit method:

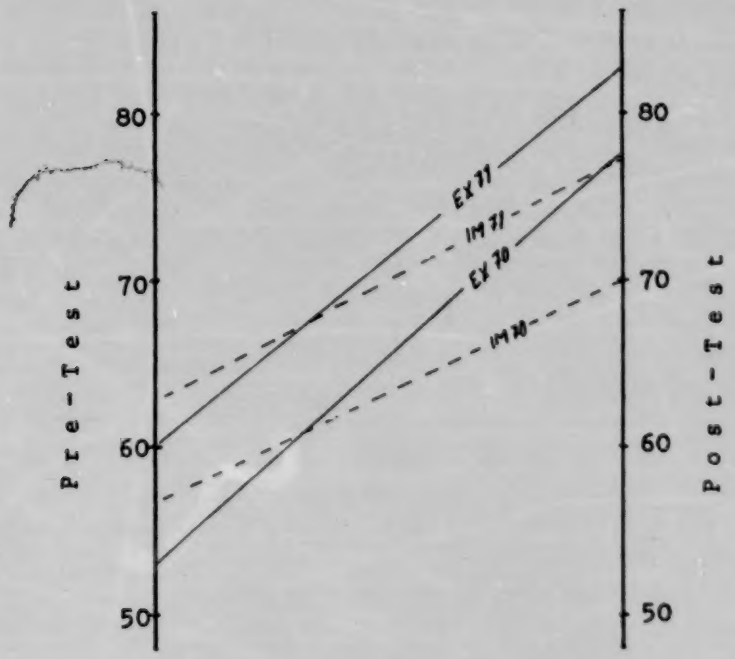

Figure 2. A Graphic Representation of Progress in the 1970 and 1971 Experiments: Method Means

Progress on Each of the Three Sub-Tests. As described above (p. 11) the Achievement Test used as a pre- and post-test consisted of three different sub-tests (A, B, and C). Part A was a 60-item multiple choice test with oral stimuli,

Part B was a 50-item multiple choice test with written stimuli, and Part C was a 20-item written production test in which the subjects were to fill in the crucial words in incomplete English sentences. The results on each of the three parts are reported in Table 7:

Table 7. Results on Each of the Three Parts of the Achievement Test: Unadjusted Means and Standard Deviations

Treatment group	Test	Pre-test		Post-test		Progress	
		$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s
IM (N=45)	A	30.51	7.99	36.49	7.05	5.98	3.79
	B	24.82	6.55	29.96	6.65	5.13	4.89
	C	7.56	4.29	11.02	4.27	3.47	2.79
	Total	62.89	17.47	77.47	16.93	14.58	8.57
EX (N=46)	A	29.28	7.84	37.39	9.15	8.11	6.35
	B	24.13	6.74	33.15	6.95	9.02	4.52
	C	6.61	4.10	11.96	4.38	5.35	3.16
	Total	60.02	17.59	82.50	19.19	22.48	11.28
Total (N=91)	A	29.89	7.90	36.95	8.15	7.05	5.33
	B	24.47	6.62	31.57	6.96	7.10	5.08
	C	7.08	4.20	11.49	4.33	4.42	3.11
	Total	61.44	17.49	80.01	18.18	18.57	10.74

As was also the case in 1970 the EX group scored higher than the IM group on all three parts of the Achievement Test, but unlike the outcome in 1970 the EX group performed better on Test B than on Test A; as previously the IM subjects were more successful with Part A than with Part B. To be sure the present pattern of results is quite in line with what one would expect considering the fact that the Implicit method stresses the oral aspects of the language, while the Explicit method gives prominence to the written word.

In the following diagram (Figure 3) a comparison is made between the scores on the three parts of the Achievement Test in the 1970 and 1971 experiments:

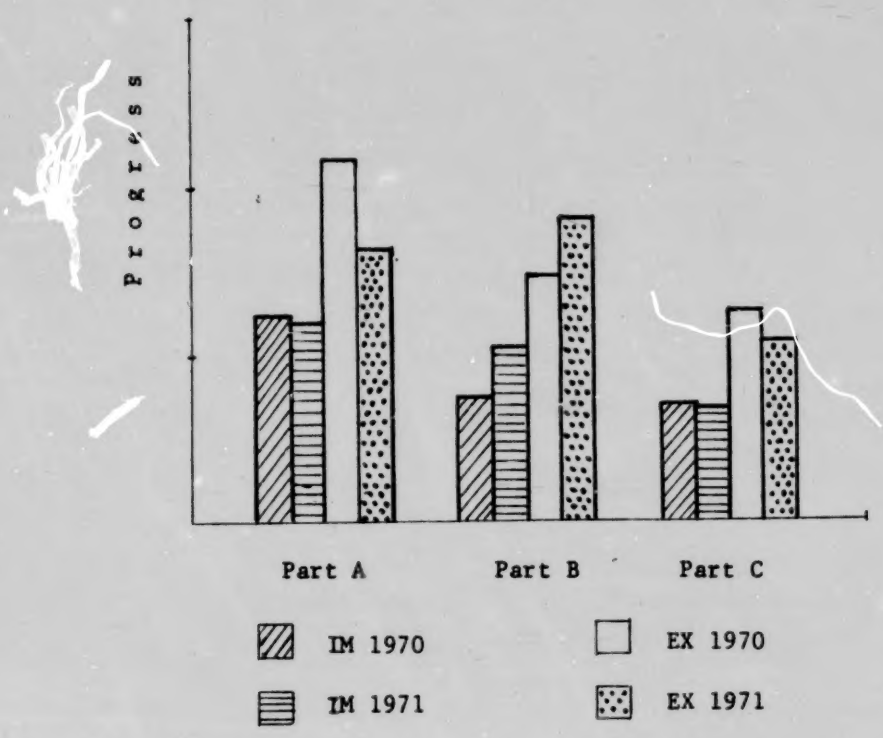

Figure 3. Progress on the Three Parts of the Achievement Test in the 1970 and 1971 Experiments

In the 1970 experiment the relation between IM and EX scores was very nearly the same on the three sub-tests, the size of each IM score being approximately 55 per cent of that of the corresponding EX score. In the replication experiment the relationship was somewhat more varied: the difference between IM and EX was, relatively speaking, smallest on Part A, the test involving oral stimuli, and largest on Part B, the multiple choice test with written stimuli.

It is interesting to note that the 1970 experimental groups were better than the replication groups on Parts A and C, but worse on Part B. This might probably be attributed to differences in schedule between the

experiments, which in turn may have had consequences on performance in the auditory language skills (see further Chapter 5).

Progress on Each of the Five Structures. In order to make it easy to compare the methods for effectiveness on each individual structure taught the Achievement Test was arranged in such a way that every fifth item tested the same structure. As will be remembered the five structures were dealt with individually and consecutively in the following order: some/any, adjectives/adverbs, the gerund after prepositions, possessive pronouns, and the passive voice; once a structure had been taught, it did not recur in subsequent lessons. The results of these computations are set out in Table 8:

Table 8. Progress on Each Individual Structure

Class	N	1 some, any	2 adj. adv.	3 prep. ing.	4 poss. pron.	5 pass. voice	Total
IM 04	29	3.10	1.86	4.21	2.72	2.83	14.72
IM 05	16	2.00	1.50	3.63	3.50	3.69	14.31
IM Total	45	2.71	1.73	4.00	3.00	3.13	14.58
EX 14	28	2.54	3.04	6.71	5.75	5.93	23.96
EX 15	18	2.61	2.39	5.50	4.94	4.72	20.17
EX Total	46	2.57	2.78	6.24	5.43	5.46	22.48
IM + EX	91	2.64	2.26	5.13	4.23	4.31	18.57

The pattern of results was quite regular, the EX group scoring higher on four out of the five structures, and lower on structure No. 1. Only in one case did an Implicit class score higher than the Explicit classes (IM 04 better than EX 14 and 15 on some/any). The ratio between IM and EX scores on all of the last four structures is close to .60, which indicates that the relative effectiveness

of the two methods does not depend very much on the kind of structure taught.

As in the 1970 experiment the difference between the methods was greatest on structure No. 4, the possessive pronouns. In the 1970 experiment the difference was smallest on No. 1, the choice between some and any; in the replication the IM method was even better than the EX method on that structure.

Adjusted Progress Scores.

The calculations of treatment effects so far presented have not taken into account the fact that the two treatment groups were not exactly equal in all respects from the beginning. Thus there was actually, in spite of the random assigning of subjects to the treatments, a certain difference between the final samples as regards their pre-experimental English proficiency and verbal aptitude scores. In order to make allowance for these initial differences we performed three analyses of covariance and estimated the mean scores the groups would have achieved if they had started out with equal scores on the Proficiency Test, the Pre-Test, and the Verbal Aptitude Test. The complete computations and data are given in the Appendix (Tables II - V). Table 9 summarizes the main results:

Table 9. A Comparison between Unadjusted and Adjusted Progress Scores: Treatment Means

Covariate	Unadjusted Progress Means		Adjusted Progress Means		Difference between Adjusted Means
	IM	EX	IM	EX	
Proficiency Test	14.26	22.33	14.17	22.41	8.24
Pre-Test	14.58	22.48	14.76	22.29	7.53
Verbal Aptitude Test	14.58	22.48	14.52	22.54	8.02

As becomes immediately apparent from the table the analyses of covariance did not affect the results very much. We may be satisfied that the observed inequality between the groups prior to the experiment was of little consequence to the outcome.

In the 1970 experiment the initial differences between the two treatment groups was somewhat greater, due to the fact that we could not use a random assignment of individuals to the treatments; instead the class was used intact as the sampling unit. The analyses of covariance therefore tended to accentuate the raw score differences obtained.

Interaction Effects

Apart from the main objective of the experiment, i.e. to assess the relative learning effects of the two teaching methods, our aim was also to investigate whether there existed any systematic co-variation (so-called interaction) between the methods on the one hand and various learner variables, such as age, initial language proficiency, or verbal aptitude on the other. Even though the Explicit method has proved, on an average, markedly superior to the Implicit method, it is of course still possible that the degree of superiority varies quite substantially between, for instance, different aptitude levels. It may even be possible that the Implicit method is more effective at one particular level, while the Explicit method is superior at the others.

We have used the method of analysis of variance (two-way classification) in the search for such interaction effects. On the basis of individual background data the two experimental samples were each divided into three English proficiency levels, three verbal aptitude levels and two age levels, for which achievement scores were then calculated separately. The critical values for the divisions were chosen in such a way that groups having roughly the same size were obtained.

In Table 10 are given the results of the first analysis of progress results, in which age was used as the independent variable. The number of subjects in each cell is given within parenthesis. As can be seen the relative

Table 10. Analysis of Variance.
Dependent Variable: Progress Total
Independent Variable: Age

Age level	Progress Means		
	IM	EX	Total
Upper: 21-	13.61 (23)	19.72 (25)	16.79 (48)
Lower: -20	15.59 (22)	25.76 (21)	20.56 (43)
T o t a l	14.58 (45)	22.48 (46)	18.57 (91)

Source of Variation	Sum of Sqs.	df	Variance Estimate	F	p
Rows (Age levels)	367.457	1	367.457	F_r=3.761	-
Columns (Methods)	1419.828	1	1419.828	F_c=14.533	<.01
Interaction	93.348	1	93.348	F_i=0.955	-
Within Cells	8499.656	87	97.70		
T o t a l	10380.289	90			

effectiveness of the two methods is about the same at the two age levels investigated. The ratio between IM and EX progress means is .61 at the lower level and .69 at the upper level. The F ratio for interaction (=.955) falls substantially short of significance (the critical value of F at the .05 level is 3.95).

Figure 4 illustrates in graph form the treatment effects at the two age levels:

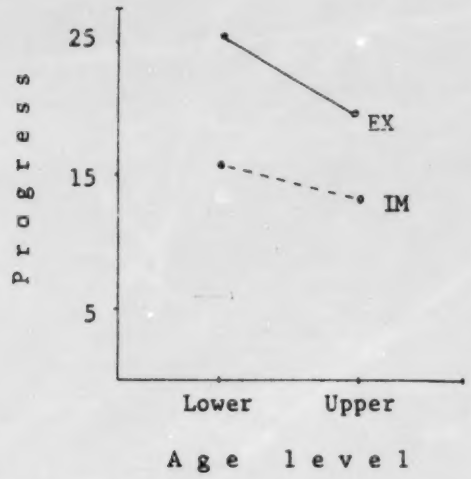

Figure 4. Progress Results at Two Age Levels

Next we related progress results to initial proficiency in English as measured by the Proficiency Test a few weeks before the experimental teaching. On the basis of Proficiency Test scores the sample was divided into three general proficiency levels of about equal size. The analysis of variance then performed yielded the results reported in Table 11 (six proficiency test scores are missing and therefore the number of subjects in this analysis is 85).

On the whole there are only small differences in progress between the three levels of proficiency, which indicates that previous knowledge of the language did not correlate with increase of learning during the experiment. There is, however, a tendency in the EX group for lower level students to do worse than the middle and upper level students. Further, the computations show that the relative effectiveness of the teaching methods does not vary in interaction with the subjects' initial proficiency. The only significant F ratio is the one for differences between columns, that is, between the two methods ($F = 13.024$; $p < .01$). We can conclude, therefore, that the Explicit method is superior to the Implicit method irrespective of the learners' initial proficiency in the language. It should be remembered, however, that our experimental subjects did not, by and large, represent a very wide range of proficiency.

Table 11. Analysis of Variance.
Dependent Variable: Progress Total
Independent Variable: Proficiency in English

Proficiency level	Progress Means		
	IM	EX	Total
Upper: 38-	14.35 (17)	24.45 (11)	18.32 (28)
Middle: 28-37	14.19 (16)	23.50 (14)	18.53 (30)
Lower: -27	14.22 (9)	20.11 (18)	18.15 (27)
T o t a l	14.26 (42)	22.33 (43)	18.34 (85)

Source of Variation	Sum of Sqs.	df	Variance Estimate	F	p
Rows (Proficiency levels)	94.770	2	47.385	F_r=0.447	-
Columns (Methods)	1381.543	1	1381.543	F_c=13.024	<.01
Interaction	62.906	2	31.453	F_i=0.297	-
Within Cells	8379.891	79	106.075		
T o t a l	9919.110	84			

The progress results at the three proficiency levels are illustrated in Figure 5:

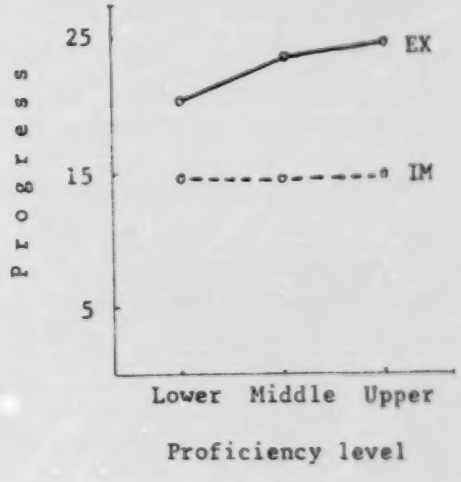

Figure 5. Progress Results at Three Proficiency Levels

Table 12, finally, presents the results of the analysis of progress at three aptitude levels:

Table 12. Analysis of Variance.
Dependent Variable: Progress Total
Independent Variable: Verbal Aptitude

Aptitude level	Progress Means IM	EX	Total
Upper: 29-	15.56 (18)	26.50 (16)	20.71 (34)
Middle: 22-28	14.54 (13)	20.44 (16)	17.79 (29)
Lower: -21	13.36 (14)	20.21 (14)	16.79 (28)
T o t a l	14.58 (45)	22.48 (46)	18.57 (91)

Source of Variation	Sum of Sqs.	df	Variance Estimate	F	p
Rows (Aptitude levels)	321.184	2	160.592	F_r=1.601	—
Columns (Methods)	1419.828	1	1419.828	F_c=14.156	<.01
Interaction	114.090	2	57.045	F_i=0.569	
Within Cells	8525.188	85	100.296		—
T o t a l	10380.290	90			

Not surprisingly the three aptitude levels display ascending progress scores. The upper level ranks first, the middle second, and the lower third in both treatment groups.

It seems clear, then, that progress covaries with aptitude in both groups. There is, however, no interpretable fluctuation in the relative effectiveness of the two methods when we move from one aptitude level to another as the small F ratio for interaction shows (F_i = .569). An F ratio of 3.10 would have been required

for significance at the .05 level. There is, thus, no evidence of interaction between teaching method and aptitude level.

If we again plot the data on a graph we get an illustration of the lack of interaction between method of teaching and verbal aptitude (Figure 6):

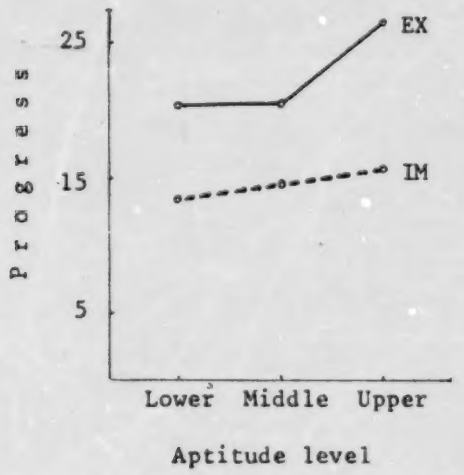

Figure 6. Progress Results at Three Aptitude Levels

An analysis of progress results for each sex was also performed. The main findings were that there was only a very minute difference in achievement between males and females (mean progress scores 18.61 and 18.53 respectively), and that there was, as expected, no interaction between sex and method of teaching. On an average males and females achieved equal results when exposed to the same treatment (IM: 14.10 and 14.96 for males and females respectively; EX: 22.38 and 22.59 respectively). Figure 7 illustrates the results:

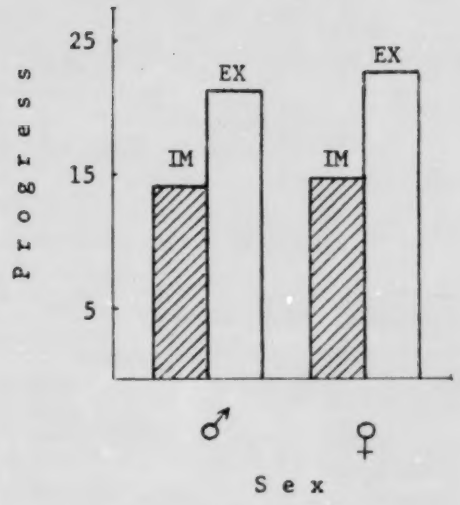

Figure 7. Progress Results for Males and Females Separately

In summary the following information was obtained through the analyses of variance. There were no interaction effects such that the relative effectiveness of the two teaching strategies varied in interaction with student characteristics. The Explicit method was almost uniformly superior at all age, proficiency, and aptitude levels, i.e. the difference in learning effect between the methods was the same irrespective of type of learner. Thus our data would seem to refute the commonly expressed belief that student characteristics are variables of greater importance than method in language teaching. However, the interaction of instructional techniques with student characteristics no doubt needs much further investigation, both with adults and school children. It was not really a primary aim of our experiment to look into these problems.

The results of the interaction studies fully confirm the findings in 1970. In that experiment comparisons were made at three levels of age, and, as in the present replication, three levels of proficiency and aptitude, but in no case could interaction effects be detected.

Absence rate

Out of the original experimental sample of 94 students three attended fewer than the stipulated 8 lessons. The rest of the students, the final experimental sample, in all recorded 23 lesson absences, which amounts to an average absence rate of .25 lessons per individual. Contrary to what was the case in the 1970 experiment the absence rate was higher in the Explicit group than in the Implicit. In the former there were 19 lesson absences and in the latter 4, making an average absence rate of .41 in the Explicit group and .09 in the Implicit group.

Table 13 shows the progress results for subjects with a full attendance record in comparison with those who had attended only eight or nine lessons:

Table 13. Progress Scores for Subjects Who Had Attended All Ten Experimental Lessons vs. Subjects Who Had Attended 8-9 Lessons

Treatment Group	Attendance					
	10 Lessons			8-9 Lessons		
	N	$\bar{x}$	s	N	$\bar{x}$	s
IM	42	14.83	8.83	3	11.33	3.21
EX	36	23.31	11.18	10	19.60	12.19

Keeping the attendance variable under control in this way does not affect the difference previously obtained. Thus absence was not a significant factor in the overall results. The calculation also shows that attendance paid off: those who missed one or two lessons did not make the same progress as those who attended the whole series.

Correlations

The data were also subjected to correlation analyses involving all the variables in the experiment. Correlation

coefficients were obtained for the two treatment groups separately, as well as for the entire experimental sample. The critical values of correlation, i.e. the values at which the coefficients can be said to be significantly different from 0, are, at the .05 level of confidence, $\underline{r}$ = 0.29 for each of the two groups and $\underline{r}$ = 0.20 for the entire experimental sample.

Only the main correlations will be presented and discussed here. The complete matrices are given in the Appendix (Tables VI - VIII).

The correlations between the various parts and the total of the Achievement Test, and also the intercorrelations between the parts, are very high and even (Table 14). Part A, the multiple choice test with oral stimuli,

Table 14. Pre-Test and Post-Test Intercorrelations: The Entire Experimental Sample

		Pre				Post			
		A	B	C	Total	A	B	C	Total
Pre	A		.80	.81	.95	.78	.68	.71	.78
	B			.80	.93	.73	.72	.72	.77
	C				.91	.72	.60	.73	.73
Total						.80	.73	.77	.82
Post	A						.83	.82	.96
	B							.76	.93
	C								.90

correlates as highly as .96 with the total at the time of the post-test, Parts B and C somewhat lower. This repeats the pattern of the original experiment. For all practical purposes Part A alone could have been used as the criterion test.

The close relationship between the scores on the three different sub-tests--intercorrelations around .80 all over--

shows that the students' grammatical accuracy, or rather lack thereof, revealed itself almost equally when different testing techniques were used. In the 1970 experiment an oral test (including a recognition and a production part) was administered in addition to the other post-tests also given in the present experiment. The correlation between the production part of that test and Post-test Total (i.e. Parts A, B, and C) was as high as .78. It is thus evident that grammatical competence may be measured with very much the same results regardless of which skill one tests.

Table 15 shows the correlation between age and other variables. There is a negative relationship between age and achievement on the various tests, except the

Table 15. Correlations between Age and Other Variables: The Entire Sample

	Age		Age
Proficiency Test: Total	.04	Post-Test: A	-.02
Verbal Aptitude Test	.33	Post-Test: B	-.13
Pre-Test: A	-.18	Post-Test: C	-.02
Pre-Test: B	-.17	Post-Test: Total	-.06
Pre-Test: C	-.14	Progress: Total	.19
Pre-Test: Total	-.18	Absence	-.15
		Attitude	.10

Proficiency Test and the Verbal Aptitude test. The coefficient for the latter is significant ($p < .01$). As was mentioned earlier (p. 23) it is a not uncommon experience in folk high schools today that the older students prove to be better learners than the younger, a phenomenon which may not be easily explained. One of the main reasons is probably to be found in the rapid changes in the Swedish educational system, which lately have led to a recruitment of students who do not appear to have the same prospects of success in

their studies as folk high school students used to have. The tendency toward correlation between Age and Progress may be a verification of this. The significant correlation between Age and Verbal Aptitude points in the same direction.

The fact that the older half of our sample on an average had a higher verbal IQ than the younger does not affect our interpretation of the main results as the two experimental groups, IM and EX, had almost the same average age (22.82 and 21.33 years, respectively). If anything, the difference in age was to the advantage of the IM group.

Attitudes

The student questionnaire included three open-ended questions and twenty fixed-response questions in which the alternatives were assigned numerical values in order to facilitate data processing. The most important statistical data have been compiled in Tables 16 and 18. The reader is also referred to the Appendix, which gives the entire questionnaire in translation (pp. 59-61).

Seven items in the test measured the students' general attitudes toward the experiment. Four of these items (1, 2, 4, and 7) were identical for the two groups, whereas three (11a, 12, and 13) differed in that they measured attitudes toward the main feature of each method: the oral drills in the Implicit method and the explanations in the Explicit method. They all had 5-point scales except for No. 7, which had three response alternatives only; in the analyses these were assigned the numerical values 1, 3, and 5. The theoretical mean of the composite scale is 21.0. The higher the mean the more positive the students' attitudes toward the experimental treatment.

As Table 16 shows the results are consistently in favor of the Explicit method. At the same time, there is a striking discrepancy in opinion between the two classes

Table 16. Attitude Test Results (General Attitudes): Class and Group Means

Item No.	ITEM	IM			EX			Entire Sample
		04	05	Total	14	15	Total	
1.	The course as a whole was: of no value (1) ... of great value (5)	3.69	2.88	3.40	4.41	3.33	3.98	3.69
2.	The lessons were: very boring (1) ... very enjoyable (5)	3.59	2.44	3.18	3.89	2.89	3.49	3.33
4.	Would you recommend the course in the present form? Absolutely not (1) ... Absolutely (5)	3.62	2.87	3.36	4.33	3.22	3.89	3.63
7.	Change of attitude toward the course: more negative (1), same (3), more positive (5)	3.35	2.63	3.09	4.23	3.56	3.96	3.52
11a.	The pattern drills/explanations were: very difficult (1) ... very easy (5)	3.25	3.19	3.23	3.36	3.67	3.49	3.36
12.	The pattern drills/explanations were: not effective at all (1) ... very effective (5)	3.90	3.56	3.78	3.96	3.67	3.84	3.81
13.	The pattern drills/explanations should be: replaced entirely (1) ... increased very much (5)	2.31	2.56	2.40	3.08	2.50	2.84	2.62
	General Attitude total	23.75	20.20	22.51	27.26	22.83	25.32	23.88

within each treatment group, class 04 being much more favorably inclined toward the Implicit method than class 05, and class 14 equally more in favor of the Explicit method than class 15. The explanation for this probably lies in the fact that the subjects did not come from the same school; as will be recalled classes 04 and 14 were taken from one school and classes 05 and 15 from another. The school to which the latter classes belonged was somewhat more goal-directed and advanced than the other; the students were less interested in the experimental lessons, maybe also less suited for them as they started off from a higher level of proficiency in English. The mean Pre-test scores for classes 05 and 15 were 69.50 and 64.67 as against 59.24 and 57.04 for classes 04 and 14. Item 3 of the questionnaire (cf. Table 18) also revealed that the majority of 05-15 subjects (28 out of 34) found that the standard of difficulty in the lessons was <u>just right</u> or <u>a little too easy</u>, whereas the majority

of 04-14 subjects (50 out of 57) found the standard *just right* or *a little too difficult.* It is understandable, then, that classes 05 and 15, i.e. the more proficient students, were slightly more impatient with the experiment than classes 04 and 14, i.e. the students with less prior knowledge of English.

In order to determine the statistical significance of the difference in opinions between the two treatment groups, IM and EX, we applied a non-parametric test, the Mann-Whitney *U* Test, which is relevant when one wishes to establish whether two independent samples can be said to be drawn from the same population, i.e. can be said to be equal from a statistical point of view. The assumption behind the test is that the scales represent at least ordinal measurement; the test compares ranks, not absolute scores (Siegel, 1956, pp. 116-127).

The results of this test are presented in Table 17:

Table 17. Mann-Whitney *U* Test of Attitude Scores: Mean Ranks and *z* Values

Item No.	Mean Ranks		
	IM	EX	*z*
1	37.54	53.46	2.88
2	41.91	49.09	1.30
4	39.59	50.29	1.95
7	37.56	52.61	2.75
11a	41.20	46.86	1.04
12	44.68	46.32	0.29
13	37.14	53.03	2.90
Total	35.26	50.10	2.78

The *z* values for items 1, 7, and 13, and also for the total, are significant at the .01 level of confidence. We may conclude, therefore, that there was a significant

difference in opinion between the groups toward the experimental lessons in general. The Explicit students thought that the lessons were of greater value than did the Implicit students; a greater number of Explicit students, in fact twice as many (11 IM students as opposed to 22 EX students), stated that they grew more and more positive toward the lessons as the experiment proceeded.

The difference in general attitude is further emphasized by the results on the items in which the students were to express opinions about specific aspects of the experiment (Specific Attitudes; Table 18). The responses to Items 5 and 6 reveal, somewhat indirectly, that the Implicit students were less happy about the experimental teaching than the Explicit students. The same sentiment has been given vent to in the very last item (No. 20), which was intended to elicit, in an unconventional way, the students' candid reactions to the treatments they had been subjected to. Many Implicit students were quite relieved to be told that the experiment was over.

The scores on the rest of the specific items seem to indicate that the main cause of the divergence in attitudes might be traced to Item 11b, where we asked the students to give an opinion about the most characteristic features of the methods (pattern drills in the IM method and explanations in the EX method). The Implicit students tended to think that there were rather too many pattern drills; the Explicit students thought that the amount of explanations was about right. Items inquiring about other aspects of the instruction, e.g. reading in chorus

Table 18. Attitude Test Results (Specific Attitudes): Class and Group Means

Item No.	ITEM	IM			EX			Entire Sample
		04	05	Total	14	15	Total	
3.	The course was: much too easy (1) - much too difficult (5)	3.21	2.69	3.02	3.11	2.67	2.93	2.98
5.	Would you recommend the course for self-instruction? Absolutely not (1) - Absolutely (5)	3.69	3.44	3.60	4.93	3.94	4.53	4.07
6.	The course with the live teacher would have been: much worse (1) - much better (5)	3.43	3.81	3.57	2.70	3.06	2.84	3.20
8a.	The dialogues were: much too easy (1) - much too difficult (5)	3.04	2.56	2.86	3.00	2.35	2.74	2.80
8b.	The dialogues were: very bad (1) - very good (5)	3.80	3.56	3.71	4.08	3.63	3.90	3.81
9a.	The written exercises were: much too easy (1) - much too difficult (5)	3.17	3.00	3.11	3.12	2.50	2.86	2.99
9b.	The written exercises were: far too few (1) - far too many (5)	2.82	2.75	2.79	2.81	2.93	2.85	2.82
10.	Reading in chorus: far too little (1) - far too much (5)	3.28	3.94	3.51	3.35	3.72	3.50	3.51
11b.	Pattern drills/explanations: far too few (1) - far too many (5)	3.25	3.69	3.41	2.89	3.56	3.14	3.28
17.	Follow up: no work done (1) - a lot of work done (5)	1.07	1.13	1.09	1.08	1.11	1.09	1.09
18.	I am studying English: only because I have to (1) - only for pleasure (3)	1.89	1.81	1.86	1.84	1.89	1.86	1.86
19.	Attitude toward languages: I don't like studying languages at all (1) - I very much enjoy studying languages (5)	3.26	3.33	3.29	3.15	3.00	3.09	3.19
20.	The course is over: What a pity! (1) - Thank Goodness! (2)	1.47	1.92	1.68	1.06	1.80	1.42	1.54

(10), the written exercises (9b), etc., yielded, on the whole, almost equal means. Differences were also small on items where the students were questioned on their motives for studying English and their attitudes toward the subject (18 and 19).

It is reassuring to find that, according to Item 3, the level of difficulty of the course was judged "just

right" by the majority of subjects (57 out of 90). Only three subjects thought that the course was "much too difficult" and two that it was "much too easy".

No follow-up work had been done in either group (Item 17).

The open-ended questions (Items 14, 15, and 16) were answered by 72 subjects, i.e. by four subjects out of five. Mostly the answers amplified the opinions already expressed in the multiple-choice part of the questionnaire. No very clear-cut pattern favoring either method appeared. Several students in both groups remarked that they had learned a great deal and that the course had been interesting because of the variety of activities offered. The breaks with music were often mentioned. A number of students made complimentary remarks on the neat organization of the lessons. The exercises, particularly the written ones, received many favorable comments. Nine students in the Explicit group pointed out that the explanations had been very instructive and of great value to them. In the Implicit group seven students felt that the careful articulation by the native speakers, and the opportunities for correct pronunciation exercises that the choral repetitions gave, were the most valuable aspects of the experiment. Four students, two in each group, thought that the most pleasing thing about the whole course was the fact that no home-work had been assigned.

Various points of criticism were also raised. Six Implicit and seven Explicit students complained that the lessons were too fast-moving and that the time allotted to the individual written exercises was too short. Five Implicit and four Explicit students said that the lesson series got boring in the end. Unhappiness about the amount of choral repetition was expressed by a number of students in each group. Five students in the Implicit group would have liked to have the grammar explained to them.

On some points statements and suggestions were contradictory. While thirteen students thought that the pace of the instruction was too quick, two students thought that it could have been speeded up. Two students were positive that nothing at all could be improved in the Explicit lesson series; two were not so laudatory: there was nothing commendable to be said about anything in the whole program. Two Implicit students appreciated pattern drills in particular, and three equally much disapproved of them. One student remarked that he was stimulated by the mass effect of simultaneous repetition in class, while two students were disturbed by fellow students responding incorrectly.

CHAPTER 5

Discussion

The results presented in the previous chapter conformed quite closely to the results of the 1970 experiment. Nevertheless some minor divergencies appeared which it would be well to discuss before drawing conclusions.

Although the progress made by the Explicit group was significantly higher than that of the Implicit group it is still clear that Implicit students tended to profit more, and Explicit students less, from the experimental treatments than was the case in the original experiment. This diminishing difference between the methods can at least in part be explained by the difference in age between the two samples, the average age in the 1970 experiment being 33 years and in the replication 22 years. Audiolingually oriented instruction of the kind embodied in the Implicit lessons is likely to be more effective the younger the learners are.

Comparing the Achievement Test results between the original experiment and the replication we found that both experimental groups in the replication achieved lower progress scores on Parts A and C of the Achievement Test than their counterparts in the original study, while on Part B the relationship was reversed so that better results were obtained by the 1971 groups. The reason for this may be found in the differences in schedule between the two experiments. As the reader will recall the subjects of the 1970 experiment were given some training in English in addition to the experimental lessons (cf. pp. 6-7), which probably improved their listening comprehension skill. Thus part of their progress on sub-test A might simply have been due to the fact that the students were more used to and better trained for comprehending the spoken word when the test was administered as a post-test.

As for attitudes toward the experimental treatments the tendency was the same as with progress, i.e. Implicit students were slightly more positive and Explicit students slightly more negative in the replication than in the original experiment, even though the difference remained significant. This again may be explained by the difference in age. Being younger, the folk high school students may have encountered and become more used to pattern drills and other characteristics of the Implicit method than the type of student represented by our original sample. It is therefore to be expected that they should have a more favorable attitude toward a method that stresses the audiolingual skills.

Since the above discussed deviations from the 1970 experiment are rather insignificant we find the results of the first experiment confirmed by our first replication. Our conclusions are, therefore, that the cognitive code-learning theory of language acquisition is superior to the audiolingual habit theory as a basis for teaching foreign language grammar to adults. The replication experiment has also given further justification for the claim that teaching methods devised according to cognitive principles are more popular among adult students than methods relying on audiolingual principles. Moreover, since no interaction effects have been found, it may be added that cognitive methods appear to be more effective than audiolingual methods irrespective of learner characteristics such as age, general language proficiency, and verbal aptitude.

It is also worth pointing out that, as far as it is possible to judge from the replication, the difference in effectiveness and attractiveness between the two methods tends to decrease at lower age levels. In view of the goals of our research program an interesting question then arises: At what age level do the methods become equally effective? In order to find an answer to this question yet another follow-up experiment was conducted, this time with 12-year-olds. Details of this

experiment are given in a separate report (von Elek and Oskarsson, 1973b).

In interpreting the results it is important to keep in mind that the experiment tested two extreme methods, based on two distinct theories of learning, which may in fact be only vaguely related to most modes of teaching practised in foreign language classes. Further, the results have not led us to take a definite position in favor of teaching strategies very similar to our Explicit method. In its present form this method obviously cannot be considered ideal for practical purposes. Further experimentation will have to be geared toward combining, in an effective and suitable way, features from both methods. Indications are that at the adult level it is the Explicit method that will have to provide the framework for an "optimal" method, even though it will have to accommodate some techniques characteristic of the Implicit method. Continued experiments along these lines are already under way and will conclude our research program. The results will be published in a final report summarizing all the activities in the GUME/Adults project.

Bibliography

Allen, J.P.B., and Van Buren, Paul, eds. Chomsky: Selected Readings. London: Oxford University Press, 1971.

Ausubel, David P. "Adults Versus Children in Second-Language Learning: Psychological Considerations." Modern Language Journal, 48 (1964), 420-424.

Carroll, J.B. "The Contributions of Psychological Theory and Educational Research to the Teaching of Foreign Languages." Modern Language Journal, 49 (1965), 273-281.

Chomsky, N. "Linguistic Theory," 1966. Extract reprinted in Allen and Van Buren, eds., 1971, pp. 152-159.

von Elek, Tibor, and Oskarsson, Mats. "An Experiment Assessing the Relative Effectiveness of Two Methods of Teaching English Grammatical Structures to Adults." IRAL, 10 (1972a), pp. 60-72.

von Elek, Tibor, and Oskarsson, Mats. Teaching Foreign Language Grammar to Adults: A Comparative Study. Department of Educational Research, Gothenburg School of Education, 1972b.

von Elek, Tibor, and Oskarsson, Mats. Teaching Foreign Language Grammar to Adults: A Comparative Study. Stockholm: Almqvist & Wiksell, 1973a.

von Elek, Tibor, and Oskarsson, Mats. A Follow-Up Study in Teaching Foreign Language Grammar. Department of Educational Research, Gothenburg School of Education, 1973b.

Fleisher, F. Folk High Schools in Sweden. Stockholm: The Swedish Institute, 1968.

Härnqvist, Kjell. Manual till F-provet. Stockholm: Skandinaviska Testförlaget AB, 1956.

Johansson, R., and Molander, L.G. Vuxenstuderande 1968: Social bakgrund, begåvning, personlighet. Preliminär rapport. Uppsala: Uppsala universitet, 1969.

Lenneberg, Eric. Biological Foundations of Language. New York: John Wiley & Sons, 1967.

Lgr 69 Läroplan för grundskolan: Supplement Engelska. Stockholm: Utbildningsförlaget, 1969.

Newmark, L., and Reibel, D.A. "Necessity and Sufficiency in Language Learning." IRAL, 6 (1968), 145-164.

Oskarsson, Mats. "Comparative Method Studies in Foreign Language Teaching." Moderna Språk, 66 (1972), pp. 350-366.

Oskarsson, Mats. "Assessing the Relative Effectiveness of Two Methods of Teaching English to Adults." IRAL, XI/3 (1973).

School Research Newsletter 1972:20. Newsletter published by the National Board of Education (Skolöverstyrelsen), Bureau L 3, Stockholm, 1972.

Siegel, Sidney. Nonparametric Statistics. New York: McGraw-Hill, 1956.

Skinner, B.F. Verbal Behavior. London: Methuen & Co, 1957.

Westrin, P.A. WIT III, Manual. Stockholm: Skandinaviska Testförlaget, 1967.

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THE SWEDISH FOLK HIGH SCHOOLS

The folk high school is a typically Scandinavian institution. It has existed in Sweden since 1868, when the first three schools were established. Today there are 107 folk high schools plus 8 affiliates which are more or less autonomous. These schools may be variously classified after the organizations that sponsor them. About half are operated by county councils and the remainder by different popular movements and organizations such as the trade unions, temperance societies, the Swedish State Church and the Free Churches.

The general aim of the folk high schools is to offer a liberal education. According to their statutes, the aim is "to impart general civic education, the work particularly aiming at making the student realize his responsibility as a man and as a member of society. It should be so performed that it strengthens the student´s will for co-operation, improves his power of independent thinking and of discerning judgment, and furthers his maturity and his interest in learning" (Fleisher, 1968, p. 24). In addition to general education the schools offer various specialized fields of study, since most of the working adults enrolled want to pursue studies that will qualify them for higher formal education. Some of the schools run special curricula that lead directly to vocational training.

No centrally determined curriculum is laid down for the folk high schools, which are free to shape their own programs within certain limits. Two different kinds of courses are offered: winter courses and specialized-subject courses. The winter courses, usually running for 34 weeks over a period of two to three years, had a student population of about 15 000 in the 1971/72 academic year. Certain subjects (e.g. Swedish, English, History, Mathematics, Civics) are compulsory during the first grade of these courses. The specialized-subject courses, which used to

be devoted to domestic science subjects, now feature courses on a wider range of subjects running for a varying number of weeks. Enrollments have increased rapidly and now total some 25 000.

In consequence of increased co-operation between folk high schools and educational associations, the specialized-subject courses have become an important complement to study circle programs. Underlying the rapid growth are the efforts that the folk high schools have made on behalf of immigrants, handicapped persons, pensioners, and others. In addition, folk high school sponsored pilot programs have commenced at prisons and mental hospitals.

Most of the students in folk high schools are adults. The minimum age of eligibility is 18. Instruction is usually given in residence and costs nothing, although the students must pay for board and lodging. Many of the students hold scholarships from municipalities and organizations. Other financial aid is forthcoming from the state program of study assistance.

Many folk high schools function as adjuncts to other types of adult education. For instance, they can offer "crash" courses and seminars to adults who are taking courses under the auspices of local authorities, the Swedish Broadcasting Corporation or the educational associations.

The folk high schools have vigorously expanded their activities, and in so doing have proved that they are an attractive adult education alternative.

Further information about the Swedish folk high schools may be found in Fleisher (1968).

The experimental lessons were administered by class teachers and assistents who operated the tape recorders and overhead projectors.

TRANSLATION OF THE ATTITUDE TEST

COURSE EVALUATION

We should like to know what you think about the Special Course you have attended. We should be grateful if you would answer all the questions. If you have viewpoints other than those taken up in the questions, we welcome criticism, both positive and negative, and any suggestions you may have for improving the course. There is space for such views and suggestions on the last page.

Please note! The questions here apply to the SPECIAL COURSE and not to the normal teaching you have.

A. <u>In this section we would like your opinions about the course as a whole</u>

1. I thought the Special Course as a whole was

   of great value/ of some value/ neither good nor bad/ of little value/ of no value

2. I thought the lessons (or most of them) were

   very enjoyable/ fairly enjoyable/ neither enjoyable nor boring/ rather boring/ very boring

3. Standard of difficulty. For me the Special Course was

   much too difficult/ a little too difficult/ just right/ a little too easy/ much too easy

4. Would you recommend that the course in its present form (or with only minor changes) be included in other English 1 courses?

   Yes, absolutely/ Yes, perhaps/ Don´t know/ No, perhaps not/ No, absolutely not

5. Do you think the Special Course should be made available for self-instruction? (In which case the work-books could be bought, the recordings borrowed and the projector materials would be included as an extra manual).

   Yes, absolutely/ Yes, perhaps/ Don´t know/ No, perhaps not/ No, absolutely not

6. What do you think the course would have been like if the teacher had taught the lessons himself instead of these being recorded. The course would have been

   much better/ a little better/ just as good/bad/ a little worse/ much worse

7. During the Special Course my attitude changed in the following way:

   I became more and more positive/ My attitude did not change/ I became more and more negative

B. In this section we would like your opinions about different parts of the course

8. I thought the dialogues were
   a) much too difficult/ a little too difficult/ of right standard of difficulty/ a little too easy/ much too easy
   b) very good/ fairly good/ neither good nor bad/ rather bad/ very bad

9. I thought the written exercises were
   a) much too difficult/ a little too difficult/ of right standard of difficulty/ a little too easy/ much too easy
   b) far too many/ a little too many/ the right number/ a little too few/ far too few

10. There was

    far too much/ a little too much/ just the right amount of/ somewhat too little/ far too little

    reading in chorus during the lessons

11. I think the oral drill exercises /explanations/ were
    a) very difficult/ somewhat difficult/ neither difficult nor easy/ rather easy/ very easy
    b) far too many/ somewhat too many/ the right number/ somewhat too few/ far too few

12. How effective do you think drill exercises /explanations/ are when learning English?

    very effective/ fairly effective/ difficult to say/ not very effective/ not effective at all

13. I think that the drill exercises can

    be replaced entirely by explanations of grammar/ be partly replaced by explanations/ be kept to their present extent/ be increased a little/ be increased very much

    (I think that the explanations can be replaced entirely by drill exercises etc.)

14. What was good about the Special Course was:

15. What was bad about the Special Course was:

16. Other viewpoints, suggestions etc.:

C. General questions

17. Although you were told at the beginning of the course not to follow up the lessons at home, you probably were curious and did some work anyway. Therefore check your alternative:

    Yes, I have done a lot of work/ Yes, I have done some work fairly regularly/ I have done some work a few times/ I have hardly done any work/ I have not done any work at all

18. I am studying English

    only for pleasure/ both because I enjoy it and because it is useful/ only because I have to for the following reason/s/: (give reason/s/, e.g. for continued studies, for my work etc.)

19. My attitude towards languages (especially English) is as follows

    I very much enjoy studying languages/ I quite like studying languages/ I do not enjoy studying languages very much/ I do not like studying languages at all

20. Now the Special Course is over

    Thank goodness!
    What a pity!

Table I. Numbers of Observations, Means, and Standard Deviations for the Main Variables in the Replication Experiment (1971)

		IM			EX			IM+EX		
		N	$\bar{x}$	s	N	$\bar{x}$	s	N	$\bar{x}$	s
1.	PROF. TEST: VOC.	42	17.64	5.34	43	16.19	5.41	85	16.91	5.39
2.	PROF. TEST: GR.	42	16.45	4.33	43	15.02	4.44	85	15.73	4.42
3.	PROF. TEST: TOT.	42	34.10	8.74	43	31.21	9.03	85	32.64	8.95
4.	VERB.APT.TEST	45	25.24	7.00	46	24.67	6.98	91	24.96	6.96
5.	AGE	45	22.82	6.78	46	21.33	3.46	91	22.07	5.39
6.	PRE-TEST: A	45	30.51	7.99	46	29.28	7.84	91	29.89	7.90
7.	PRE-TEST: B	45	24.82	6.55	46	24.13	6.74	91	24.47	6.62
8.	PRE-TEST: C	45	7.56	4.29	46	6.61	4.10	91	7.08	4.20
9.	PRE-TEST: TOT.	45	62.89	17.47	46	60.02	17.59	91	61.44	17.49
10.	PRE-TEST: STR.1	45	14.51	4.24	46	14.15	4.43	91	14.33	4.32
11.	PRE-TEST: STR.2	45	9.51	2.92	46	9.26	2.82	91	9.38	2.85
12.	PRE-TEST: STR.3	45	12.62	6.77	46	11.20	5.42	91	11.90	6.13
13.	PRE-TEST: STR.4	45	13.64	4.19	46	13.20	4.95	91	13.42	4.57
14.	PRE-TEST: STR.5	45	12.60	4.20	46	12.22	3.91	91	12.41	4.04
15.	POST-TEST: A	45	36.49	7.05	46	37.39	9.15	91	36.95	8.15
16.	POST-TEST: B	45	29.96	6.65	46	33.15	6.95	91	31.57	6.96
17.	POST-TEST: C	45	11.02	4.27	46	11.96	4.38	91	11.49	4.33
18.	POST-TEST: TOT.	45	77.47	16.93	46	82.50	19.19	91	80.01	18.18
19.	POST-TEST: STR.1	45	17.22	3.88	46	16.72	4.95	91	16.97	4.44
20.	POST-TEST: STR.2	45	11.24	2.83	46	12.04	3.01	91	11.65	2.93
21.	POST-TEST: STR.3	45	16.62	6.67	46	17.43	6.25	91	17.03	6.44
22.	POST-TEST: STR.4	45	16.64	4.03	46	18.63	4.96	91	17.65	4.61
23.	POST-TEST: STR.5	45	15.73	4.74	46	17.67	4.32	91	16.71	4.61
24.	PROGR.: A	45	5.98	3.79	46	8.11	6.35	91	7.05	5.33
25.	PROGR.: B	45	5.13	4.89	46	9.02	4.52	91	7.10	5.08
26.	PROGR.: C	45	3.47	2.79	46	5.35	3.16	91	4.42	3.11
27.	PROGR.: TOT.	45	14.58	8.57	46	22.48	11.28	91	18.57	10.74
28.	ABSENCE	45	0.09	0.36	46	0.30	0.63	91	0.20	0.52
29.	ATTITUDE	43	22.51	4.96	41	25.32	4.26	84	23.88	4.82

Table II. Analyses of Covariance.
Dependent Variable: Progress Total
Covariates: Proficiency Test, Pre-Test,
Verbal Aptitude Test

Covariate	Adjusted Progress Means		F ratio	p	ss'_y		df	b_w
	IM	EX			Between	Within		
Proficiency Test	14.17	22.41	13.53	<.01	1405	8513	1/82	.06
Pre-Test	14.77	22.29	13.26	<.01	1280	8495	1/88	-.13
Verbal Aptitude	14.52	22.54	14.62	<.01	1459	8782	1/88	.20

Table III. Analyses of Covariance.
Dependent Variable: Progress on Test A
Covariates: Proficiency Test, Pre-Test,
Verbal Aptitude Test

Covariate	Adjusted Progress A Means		F ratio	p	ss'_y		df	b_w
	IM	EX			Between	Within		
Proficiency Test	5.59	8.01	4.65	<.05	122	2144	1/82	.09
Pre-Test	6.05	8.04	3.29	<.10	89	2378	1/88	-.05
Verbal Aptitude	5.96	8.13	3.89	<.10	107	2425	1/88	.07

Table IV. Analyses of Covariance.
Dependent Variable: Progress on Test B
Covariates: Proficiency Test, Pre-Test, Verbal Aptitude Test

Covariate	Adjusted Progress B Means		F ratio	p	ss'_y		df	b_w
	IM	EX			Between	Within		
Proficiency Test	5.18	8.96	12.41	<.01	295	1948	1/82	-.04
Pre-Test	5.21	8.94	14.63	<.01	314	1890	1/88	-.06
Verbal Aptitude	5.10	9.05	16.14	<.01	354	1929	1/88	.10

Table V. Analyses of Covariance.
Dependent Variable: Progress on Test C
Covariates: Proficiency Test, Pre-Test, Verbal Aptitude Test

Covariate	Adjusted Progress C Means		F ratio	p	ss'_y		df	b_w
	IM	EX			Between	Within		
Proficiency Test	3.40	5.44	9.52	<.01	86	743	1/82	.02
Pre-Test	3.50	5.31	8.42	<.01	74	776	1/88	-.02
Verbal Aptitude	3.46	5.36	9.11	<.01	82	789	1/88	.03

Table VI. Intercorrelations Between the Main Variables: The IM Group (N = 45)

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) Proficiency Test: Vocabulary	.63	.92	.10	-.10	.62	.63	.68	.69	.66	.47	.68	.63	-.04	-.19	.02	-.12	-.02	-.08
(2) Proficiency Test: Grammar		.88	.06	.17	.52	.49	.55	.56	.57	.41	.63	.56	.01	-.10	.13	-.01	-.09	.08
(3) Proficiency Test: Total			.09	.02	.64	.63	.68	.70	.69	.49	.73	.66	-.02	-.16	.08	-.08	-.06	-.01
(4) Verbal Aptitude Test				.32	.29	.31	.35	.33	.37	.38	.36	.39	.07	.10	.01	.09	.04	-.09
(5) Age					-.24	-.17	-.17	-.21	-.10	-.19	-.05	-.13	.33	-.04	.19	.18	-.15	.17
(6) Pre-test A						.76	.82	.94	.88	.76	.76	.86	-.47	.02	-.10	-.23	.13	-.01
(7) Pre-test B							.79	.92	.76	.73	.73	.78	-.19	-.35	-.11	-.32	.21	-.21
(8) Pre-test C								.92	.78	.64	.79	.78	-.27	-.19	-.33	-.33	.07	-.17
(9) Pretest: Total									.88	.78	.81	.88	-.35	-.17	-.17	-.31	.15	-.13
(10) Post-test A										.85	.85	.96	.00	.14	.10	.11	.08	-.06
(11) Post-test B											.77	.94	-.02	.39	.19	.27	.14	-.09
(12) Post-test C												.91	-.02	.07	.32	.14	.06	-.05
(13) Post-test: Total													-.01	.23	.19	.19	.11	-.07
(14) Progress A														.23	.39	.70	-.12	-.10
(15) Progress B															.40	.80	-.08	.17
(16) Progress C																.72	-.02	.22
(17) Progress: Total																	-.11	.13
(18) Absence																		-.12
(19) Attitude																		

Table VII. Intercorrelations Between the Main Variables: The EX Group (N = 46)

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) Proficiency Test: Vocabulary	.67	.93	.06	.03	.74	.67	.82	.77	.73	.64	.71	.74	.15	-.01	-.02	.07	.21	.32
(2) Proficiency Test: Grammar		.90	.05	-.00	.56	.62	.66	.63	.71	.61	.64	.71	.34	.01	.08	.21	.20	.08
(3) Proficiency Test: Total			.06	.01	.72	.70	.81	.77	.79	.68	.74	.79	.26	.00	.03	.15	.22	.23
(4) Verbal Aptitude Test				.38	.18	.22	.08	.06	.24	.35	.15	.28	.12	.21	.11	.18	-.07	.17
(5) Age					-.12	-.23	-.16	-.18	.12	.04	.09	.09	.32	.41	.32	.43	-.14	.16
(6) Pre-test A						.85	.80	.96	.73	.69	.69	.76	-.18	-.20	-.08	-.20	.05	.01
(7) Pre-test B							.81	.95	.73	.78	.73	.80	.00	-.29	-.04	-.12	.19	.07
(8) Pre-test C								.90	.70	.66	.72	.74	.03	-.19	-.29	-.14	.22	.12
(9) Pre-test: Total									.77	.76	.76	.82	-.07	-.24	-.12	-.17	.15	.06
(10) Post-test A										.84	.81	.96	.54	.20	.20	.44	.01	.16
(11) Post-test B											.75	.93	.35	.37	.19	.40	.10	.16
(12) Post-test C												.89	.31	.07	.45	.33	.11	.20
(13) Post-test: Total													.45	.25	.27	.43	.07	.18
(14) Progress A														.54	.39	.89	-.05	.25
(15) Progress B															.34	.80	-.14	.15
(16) Progress C																.64	-.13	.12
(17) Progress: Total																	-.12	.25
(18) Absence																		.04
(19) Attitude																		

Table VIII. Intercorrelations Between the Main Variables: The Entire Sample (N = 91)

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) Proficiency Test: Vocabulary	.66	.93	.09	-.03	.69	.65	.75	.73	.69	.51	.68	.67	.05	-.14	-.04	-.06	.09	.08
(2) Proficiency Test: Grammar		.89	.07	.12	.55	.56	.61	.61	.64	.46	.61	.61	.17	-.10	.05	.05	.06	.03
(3) Proficiency Test: Total			.09	.04	.68	.67	.75	.74	.73	.54	.71	.70	.11	-.13	-.00	-.01	.08	.07
(4) Verbal Aptitude Test				.33	.24	.27	.22	.26	.29	.34	.25	.32	.09	.12	.05	.12	-.03	.01
(5) Age					-.18	-.17	-.14	-.18	-.02	-.13	-.02	-.06	.24	.04	.17	.19	-.15	.10
(6) Pre-test A						.80	.81	.95	.78	.68	.71	.78	-.29	-.11	-.11	-.23	.06	-.01
(7) Pre-test B							.80	.93	.73	.72	.72	.77	-.07	-.32	-.08	-.21	.18	-.08
(8) Pre-test C								.91	.72	.60	.73	.73	-.10	-.22	-.33	-.25	.13	-.06
(9) Pre-test: Total									.80	.73	.77	.82	-.18	-.22	-.16	-.24	.12	-.05
(10) Post-test A										.83	.82	.96	.37	.18	.17	.32	.04	.08
(11) Post-test B											.76	.93	.25	.43	.24	.40	.15	.09
(12 Post-test C												.90	.20	.10	.40	.27	.11	.10
(13) Post-test: Total													.31	.27	.26	.36	.10	.09
(14) Progress A														.44	.42	.82	-.02	.14
(15) Progress B															.44	.82	-.02	.26
(16) Progress C																.71	-.02	.24
(17) Progress: Total																	-.03	.28
(18) Absence																		.03
(19) Attitude																		

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RAPPORTER FRÅN

PEDAGOGISKA INSTITUTIONEN VID LÄRARHÖGSKOLAN I GÖTEBORG

1. Stukát, K-G & Engström, R. TV-observationer av läraraktiviteter i klassrummet. Januari 1966

2. Stukát, K-G & Engström, R (red). Samnordisk specialpedagogisk forskning. Rapport från konferens i Göteborg april 1966. December 1966

3. Stukát, K-G & Engström, R (red). Lärarhögskolornas pedagogikkonferens läsåret 1966-67. November 1967

4. Klingberg, G. Språklig-stilistisk struktur i barn- och vuxenlitteratur. Kvantitativa undersökningar över den pedagogiska adaptationen. November 1968

5. Bladini, U-B. Målbeskrivningar i ämnet svenska på lågstadiet. SISU-projektet 1. December 1968

6. Brusling, Chr. Sexualundervisningen i årskurs 9. En attitydundersökning bland biologi- och kristendomslärare. Februari 1969

7. Olsson, H & Österberg, I. Målbeskrivningar i ämnet matematik på lågstadiet. SISU-projektet 2. April 1969

8. Stangvik, G (red). Förberedande studier rörande läsning av socialt viktiga ord i träningsskolan. Samnordiska projektet i specialpedagogik 1. Maj 1969

9. Lewerth, A & Stangvik, G. Läsning av socialt viktiga ord. Ett försök med programmerad undervisning för utvecklingsstörda. Samnordiska projektet i specialpedagogik 2. Maj 1969

10. Öbrink, J. Talbegreppens utveckling hos intellektuellt retarderade barn. Juni 1969

11. Lindblad, T. Implicit and Explicit - An Experiment in Applied Psycholinguistics, Assessing Different Methods of Teaching Grammatical Structures in English as a Foreign Language. GUME-projektet 1. Juni 1969

12. Carlsson, I. Implicit and Explicit - An Experiment in Applied Psycholinguistics, Assessing Different Methods of Teaching Grammatical Structures in English as a Foreign Language. GUME-projektet 2. September 1969

13. Olsson, M. Implicit and Explicit - An Experiment in Applied Psycholinguistics, Assessing Different Methods of Teaching Grammatical Structures in English as a Foreign Language. GUME-projketet 3. September 1969

14. Levin, L. Implicit och Explicit. En jämförande studie av olika metoder att lära ut grammatiska strukturer i engelska. Sammanfattande rapport av tre fältförsök. GUME-projektet 4. September 1969

15. Klingberg, G. Barn- och ungdomslitteraturforskning. Områden - metoder - terminologi. September 1969

16. Öbrink, J. Evaluering av ett pedagogiskt försök med strukturerat matematikmaterial. Januari 1970

17. Ersman, Å. Evaluering av SUM-projektet årskurs 4. SUM-projektet. Svenskundervisning på mellanstadiet. September 1970

18. Stangvik, G. Effekter av spesialundervisning. En kritisk oversikt og et eget empirisk bidrag. Samnordisk prosjekt i spesialpedagogikk. Oktober 1970

19. Österberg-Karlsson, I. Konsonantens teckning efter kort vokal. Konstruktion och funktionsutprövning av två programmerade inlärningsmaterial för lågpresterande elever. SISU-projektet 3. November 1970

20. Bladini, U-B. Konsonantens teckning efter kort vokal. En experimentell undersökning av två träningsmetoder i stavning för lågpresterande elever. SISU-projektet 4. Mars 1971

21. Peterson, S. Vad vet grundskoleeleven om kartan? Oktober 1971

22. Brusling, Chr. Fri skrivning på lågstadiet. Effekter av språkövande samtal efter stimulering med ljudband. Oktober 1971

23. Dahlgren, H. & Zackrisson, E. Lärarkandidaters syn på ITV. En enkätstudie. Oktober 1971

24. Bredänge, G. m fl. Didaktisk processanalys. Presentation av syften, uppläggning, undersökningsgrupper och undersökningsinstrument samt några beskrivande data. DPA-projektet 1. November 1971

25. Levin, L. m fl (red). Rapport från konferens i Gymnastikpedagogik. Göteborg, december 1971. December 1971

26. Lewerth, A. & Stangvik, G. Aktuell specialpedagogisk forskning i Danmark, Norge och Sverige år 1966-1969. December 1971

27. Ersman, Å. Evaluering av SUM-projektet årskurs 5. SUM-projektet. Svenskundervisning på mellanstadiet. Mars 1972

28. Bredänge, G. & Odhagen, T. Didaktisk processanalys. Ett studium av lärar- och elevbeteenden i klassrumssituationen. DPA-projektet 2. April 1972

29. Gustafsson, B. & Stigebrandt, E. Vad kännetecknar undervisning i hjälpklass? En jämförelse mellan undervisningsprocesser i hjälpklass och vanlig klass. Maj 1972

30. Leima., U. Ett försök med individualiserad lästräning som bygger på barnens eget språk. Maj 1972

31. Bladini, U-B. Stödmaterial i svenska och matematik för lågpresterande elever. Konstruktion och preliminär utprövning i årskurserna 1-3. September 1972

32. Öbrink, J. Uppföljning av ett pedagogiskt försök med strukturerat matematikmaterial. Oktober 1972

33. Sverud, K-A. Utveckling och utvärdering av inlärningsorienterade aktiviteter i förskolan. Förskoleprojektet 1. Oktober 1972

34. Jakobsson, A-K & Tobiasson, I. Behandling av aggressivitet hos förskolebarn. Ett försök till metodutveckling. Förskoleprojektet 2. Oktober 1972

35. Kärrby, G, Ekholm, B & Gannerud-Menssén, E. Projektet Socialisationsprocessen i förskolan. Bakgrund, målsättning och beskrivning av förundersökning. Projektet Socialisationsprocessen i förskolan 1. December 1972

36. Ersman, Å. Evaluering av SUM-projektet årskurs 6. SUM-projektet. Svenskundervisning på mellanstadiet. December 1972

37 Hagalm, I. Lärarattityder till SISU-materialet. SISU-projektet 6. Januari 1973

38. Larsson, L & Odhagen, T. Studiegrupper - gruppstyrda studier. Ett försök med gruppcentrerade pedagogikstudier på mellanstadielärarlinjen. DPA-projektet 4. Januari 1973

39. Lindblad, T. Klasslärarkandidaternas språkfärdighet. Försök med diagnostiska prov i engelska på klasslärarlinjerna. GUME/prov. Februari 1973

40. Setterlind, S. Gymnastikundervisningen i årskurs 7 och 8. En enkätstudie i Karlstads kommun 1970-1971. Gymnastikprojektet 2. Mars 1973

41. Bladini, U-B (Red). Elevattityder till SISU-materialet. En sammanställning av specialarbeten vid speciallärarlinjen, Lärarhögskolan i Göteborg. SISU-projektet 7. Mars 1973

42. Olsson, H. SISU-material. En beskrivning av inom projektet framställda och utprövade läromedelsprototyper. SISU-projektet 8. Maj 1973

43. Aldén, B. Uppföljning i åk 1 av ett strukturerat och målinriktat förskoleprogram. Förskoleprojektet 3. Maj 1973

UPPSATSER FRÅN

PEDAGOGISKA INSTITUTIONEN VID LÄRARHÖGSKOLAN I GÖTEBORG

1. Stangvik, G. Angst og skoleprestasjon. Mars 1972

2. Tingsell, J-G. Beteendeobservationer med mekanisk registrerutrustning. Maj 1972

3. Brusling, Chr. Effects of cued modelling procedures and self-confrontation in a microteaching setting aimed at developing non-verbal behavior. Maj 1972

4. Stangvik, G. Svagt begåvade elevers popularitet i skolklassen. Juni 1972

5. Dahlgren, H & McDowall, M. Dokumentation- och litteratursökning med hjälp av dator. Oktober 1972

6. Kilborn, W. SISU-materialet i matematik som ett hierarkiskt system. November 1972

7. Leimar, Ulrika. LTG-försöket i förskolan. Rapport om utprövning i förskola med en metod för språk- och begreppsinlärning som utgår från barnens eget språk. November 1972

8. Oskarsson, M. Språkinlärning hos vuxna. En sammanfattning av två jämförande metodstudier. November 1972

9. Kääriäinen, R. Differences in ability factor profiles between mongoloid and nonmongoloid retarded subjects in discriminant analysis and after covariance adjustments. November 1972

10. Kääriäinen, R. Discrimination learning differences between mongoloid and nonmongoloid mentally retarded subjects. November 1972

11. Sammanställning av forskningsprojekt 1972/1973. December 1972

12. Stangvik, G. Invandrarbarn i skolklassen. En sammanställning av data från tre specialarbeten. Januari 1973

13. Brusling, Chr & Tingsell, J-G. Självobservation och självanalys i lärarutbildningen. Ett läromedel med tillhörande studiegång samt preliminära erfarenheter av dess användning. Februari 1973

14. Rapporter och tryckta skrifter utgivna under år 1972. Mars 1973

15. Gustavsson, S & Olsson, L. Attityder och attitydförändringar i gymnastik. Intervju- och enkätundersökning med en grupp elever i åk 9, vilka i åk 7 hade bedömts som svagmotiverade i gymnastik. Gymnastik och idrottsprojektet 3. Maj 1973

16. Gustafsson, B & Stigebrandt, E. Funderingar kring begreppet självuppfattning. SIS-projektet 1. Juni 1973

17. Sammanställning av forskningsprojekt bå 1973/74. Augusti 1974

DEPARTMENT OF EDUCATIONAL RESEARCH, GOTHENBURG SCHOOL OF EDUCATION.

Research Bulletins.

1. **Levin, L.** Implicit and Explicit - A Synopsis of Three Parallel Experiments in Applied Psycholinguistics Assessing Different Methods of Teaching Grammatical Structures in English as a Foreign Language. The GUME Project. December 1969.

2. **Klingberg, G.** The Fantastic Tale for Children. A Genre Study from the Viewpoints of Literary and Educational Research. February 1970.

3. **Kääriäinen, R.** The Factor Structure of Intellectual Abilities and Signal Sight Vocabulary Learning at Moderate and Severe Levels of Preliterate Mental Retardation. The Scandinavian Research Group on Special Education. June 1970.

4. **Stukát, K-G.** Teacher Role in Change. Project DPA. October 1970.

5. **Klingberg, G.** A Scheme for the Classification of Educational Objectives. The LIGRU Project. November 1970.

6. **Lindblad, T. & Levin, L.** Teaching Grammar. An Experiment in Applied Psycholinguistics, Assessing Three Different Methods of Teaching Grammatical Structures in English as a Foreign Language. The GUME Project. December 1970.

7. **Levin, L. & Olsson, M.** Learning Grammar. An Experiment in Applied Psycholinguistics, Assessing Three Different Methods of Teaching Grammatical Structures in English as a Foreign Language. The GUME Project. January 1971.

8. **Klingberg, G. & Ågren, B.** Objectives Stated for the Use of Literature at School. An Empirical Analysis. Part I. The LIGRU Project. May 1971.

9. **Klingberg, G. & Ågren, B.** Objectives Stated for the Use of Literature at School. An Empirical Analysis. Part II: Appendices. The LIGRU Project. May 1971.

10. **von Elek, T. & Oskarsson, M.** Teaching Foreign Language Grammar to Adults. A Comparative Study. The GUME/Adults Project. May 1972.

11. **Klingberg, G. & Ågren, B.** Expert Opinions on the Use of Literature in the Swedish Comprehensive School. A Taxonomic Approach to Requirement Analysis. The LIGRU Project. May 1972.

12. **Olsson, M.** Intelligibility. A Study of Errors and Their Importance. The GUME Project. May 1972.

13. **Klingberg, G. & Ågren, M.** Planning Literary Instruction. A Discussion of the Curricular Objectives for the Teaching of Literature in the Swedish Comprehensive School and a Rationale for Objective-Procedure-Criterion Units. The LIGRU Project. December 1972

14. Brusling, Chr & Tingsell, J-G. Self-Observation and Self-Analysis in Teacher Training. Teaching Materials and Curriculum together with Preliminary Findings on Their Use. The Microteaching Project. April 1973

15. Klingberg, G. Goal-based Literary Instruction. A Summary of the Basic Analyses of the LIGRU Project and a Programme for Practical Application and Further Research. The LIGRU Project. June 1973

16. von Elek, T & Oskarsson, M. A Replication Study in Teaching Foreign Language Grammar to Adults. The GUME/Adults Project. August 1973